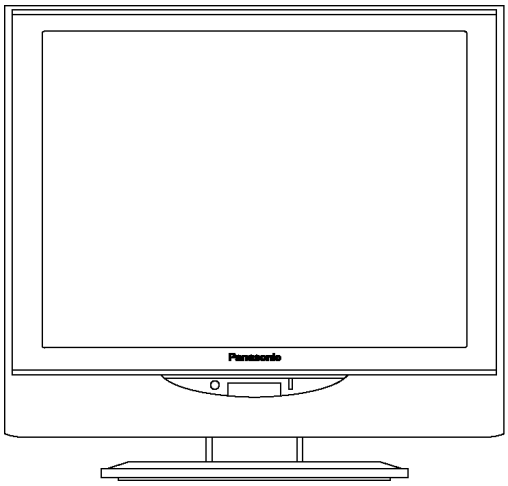
ORDER NO. ITD0311071C3

Service Manual

LCD TV



TX-17LA1M
TX-17LA1Q
TX-17LA1Z
TX-17LA1X
TX-17LA1T
TC-17LA1H
TX-20LA1M
TX-20LA1Q
TX-20LA1Z
TX-20LA1X
TX-20LA1T
TC-20LA1H

LH11 Chassis

Power Source

AC 100~240V, 50/60Hz

Power Consumption

Average use: 56W (17inch model)

60W (20inch model)

Stand-by condition: 1.8W

TV set DC 15V, 3.2 A max. (17inch model)

TV set DC 15V, 3.4 A max. (20inch model)

LCD

17inch (432mm) (17inch model)

20inch (510mm) (20inch model)

4:3 aspect ratio LCD panel (640 × 480 pixel)

Screen Size

343.7mm(W) x 261.6mm(H) (17inch model)

408.0mm(W) x 306.0mm(H) (20inch model)

Sound

Speaker

Ø4cm, 2pcs, 16Ω

Audio Output

6.0W (3.0W+3.0W), 10%THD

Headphones

M3(3.5 mm) Jack x 1

Receiving Systems/ Band name

17 Systems		Function
1	PAL B, G, H	Reception of broadcast transmissions and Playback from Video Cassette Tape Recorders
2	PAL I	
3	PAL D, K	
4	SECAM B,G	
5	SECAM D,K	
6	SECAM K1	
7	NTSC M (NTSC 3.58/4.5MHz)	
8	NTSC 4.43/5.5MHz	Playback from special VCR's
9	NTSC 4.43/6.0MHz	
10	NTSC 4.43/6.5MHz	
11	NTSC 3.58/5.5MHz	
12	NTSC 3.58/6.0MHz	
13	NTSC 3.58/6.5MHz	
14	SECAM I	
15	PAL 60Hz/5.5MHz	Playback from Special Disc Players and Special VCR's
16	PAL 60Hz/6.0MHz	
17	PAL 60Hz/6.5MHz	

Receiving Channels

Regular TV

VHF-BAND

2-12 (PAL/SECAM B, K1)

0-12 (PAL B AUST.)

1-9 (PAL B N. Z)

1-12 (PAL/SECAM D)

1-12 (NTSC M Japan)

Panasonic®

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2-13 (NTSC M U.S.A)

UHF BAND

21-69 (PAL G, H, I/SECAM G, K, K1)
28-69 (PAL B AUST.)
13-57 (PAL D, K)
13-62 (NTSC M Japan)
14-69 (NTSC M U.S.A)

CATV

S1-S20 (OSCAR)
1-125 (U.S.A CATV)
C13-C49 (JAPAN)
S21-S41 (HYPER)
Z1-Z37 (CHINA)
5A, 9A (AUST.)

Aerial-Rear

UHF/VHF

Operating Conditions

Temperature: 5°C-40°C
Humidity: 5%-90% RH (non-condensing)

Connection terminals

AV1

VIDEO (RCA Pin Type)
1.0Vp-p (75 Ω)
S-VIDEO (MINI DIN 4-pin)
y:1.0Vp-p (75 Ω) C:0.286 Vp-p (75 Ω)
AUDIO L-R (RCA Pin Type × 2)
0.5 Vrms

AV2

VIDEO (RCA Pin Type)
1.0 Vp-p (75 Ω)
AUDIO L-R (RCA Pin Type × 2)
0.5Vrms
Y
1.0 Vp-p (including ynchronization)
PB/PR
± 0.35 Vp-p
VIDEO (RCA PinType)
1.0 Vp-p (75 Ω)
AUDIO L-R (RCA Pin Type × 2)
0.5 Vrms

MONITOR OUT

VIDEO (RCA Pin Type)
1.0Vp-p (75Ω)
AUDIO L-R (RCA Pin Type×2)
0.5Vrms

Dimensions (W x D x H)

Including TV Stand

424mm x 415mm x 215mm (17inch model)
494mm x 461mm x 255mm (20inch model)

TV Set Only

424mm x 382mm x 64mm (17inch model)
494mm x 422mm x 82mm (20inch model)

Weight (Mass)

5.4kg Net (17inch model)
7.4kg Net (20inch model)

Note:

Design and Specifications are subject to change without notice.
Weight and Dimensions shown are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CONTENTS

Page

1 Safety Precautions ---- 4
1.1. General Guidelines ---- 4
2 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices ---- 5
3 About lead free solder (PbF) ---- 6
4 Self Check ---- 7
5 SERVICE HINTS ---- 7
5.1. Hotel Mode ---- 7
6 Chassis Board Layout ---- 8
7 Before servicing ---- 9
7.1. Kind and location of the flexible cable ---- 9
7.2. How to remove the connector ---- 10
8 Disassembly for Service ---- 11
8.1. Hinge cover and AV cable cover ---- 11
8.2. Rear cover and Tilt base ---- 11
8.3. AV terminal cover, EP jack cover, and Tuner cover ---- 12

Page

8.4. Shield plate ---- 12
8.5. Inverter shield and Lock hinge (20inch model) ---- 13
8.6. B-Board and K-Board ---- 14
8.7. BL-Board, DG-Board and A-Board ---- 14
8.8. V-Board ---- 15
8.9. Speaker ---- 15
8.10. LCD panel ---- 16
9 Service Mode Function ---- 17
9.1. How to enter SERVICE 1 ---- 17
9.2. How to enter SERVICE 2 ---- 17
9.3. Option Description ---- 19
9.4. Option Code Setting (17 inch model) ---- 21
9.5. Option Code Setting (20 inch model) ---- 22
10 Conductor Views ---- 23
10.1. A-Board ---- 23
10.2. DG-Board (17inch model) ---- 25

10.3. DG-Board (20inch model) 30
10.4. B, BL, K and V-Board 34
11 Block and Schematic Diagram 37
11.1. Schematic Diagram Notes 37
11.2. Power Block Diagram 38
11.3. Signal Block Diagram 40
11.4. A-Board (1 of 4) and B-Board Schematic Diagram 42
11.5. A-Board (2 of 4) Schematic Diagram 43
11.6. A-Board (3 of 4) and V-Board Schematic Diagram 44
11.7. A-Board (4 of 4) Schematic Diagram, BL-Board, and K-Board Schematic Diagram 45
11.8. DG-Board (1 of 6) Schematic Diagram (For 17inch model) 46
11.9. DG-Board (2 of 6) Schematic Diagram (For 17inch model) 47
11.10. DG-Board (3 of 6) Schematic Diagram (For 17inch model) 48
11.11. DG-Board (4 of 6) Schematic Diagram (For 17inch model) 49
11.12. DG-Board (5 of 6) Schematic Diagram (For 17inch model) 50
11.13. DG-Board (6 of 6) Schematic Diagram (For 17inch model) 51
11.14. DG-Board (1 of 5) Schematic Diagram (For 20inch model) 52
11.15. DG-Board (2 of 5) Schematic Diagram (For 20inch model) 53
11.16. DG-Board (3 of 5) Schematic Diagram (For 20inch model) 54
11.17. DG-Board (4 of 5) Schematic Diagram (For 20inch model) 55
11.18. DG-Board (5 of 5) Schematic Diagram (For TX-20LA1) 56
12 Parts Location & Mechanical Replacement Parts List 57
12.1. Parts Location (1) 57
12.2. Parts Location (2) 58
12.3. Parts Location (3) 59
12.4. Mechanical Replacement Parts List 60
13 Replacement Parts List 61
13.1. Replacement Parts List Notes 61
13.2. Electrical Replacement Parts List 62

1 Safety Precautions

1.1. General Guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

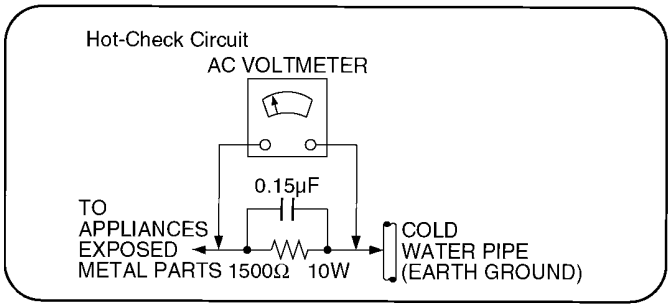


Figure 1

1.1.2. Leakage Current Hot Check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15µF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

2 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

3 About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

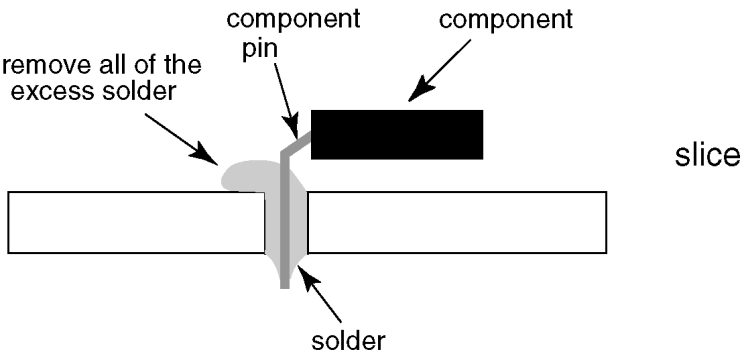
This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol (PbF) stamped on the back of PCB.

Caution

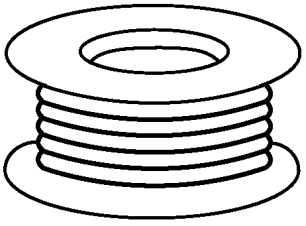
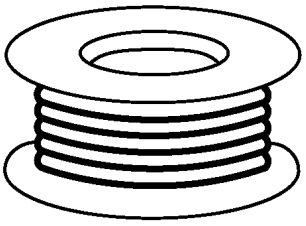
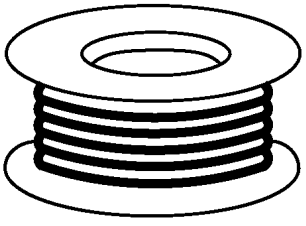
- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40°C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
- Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).

  If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



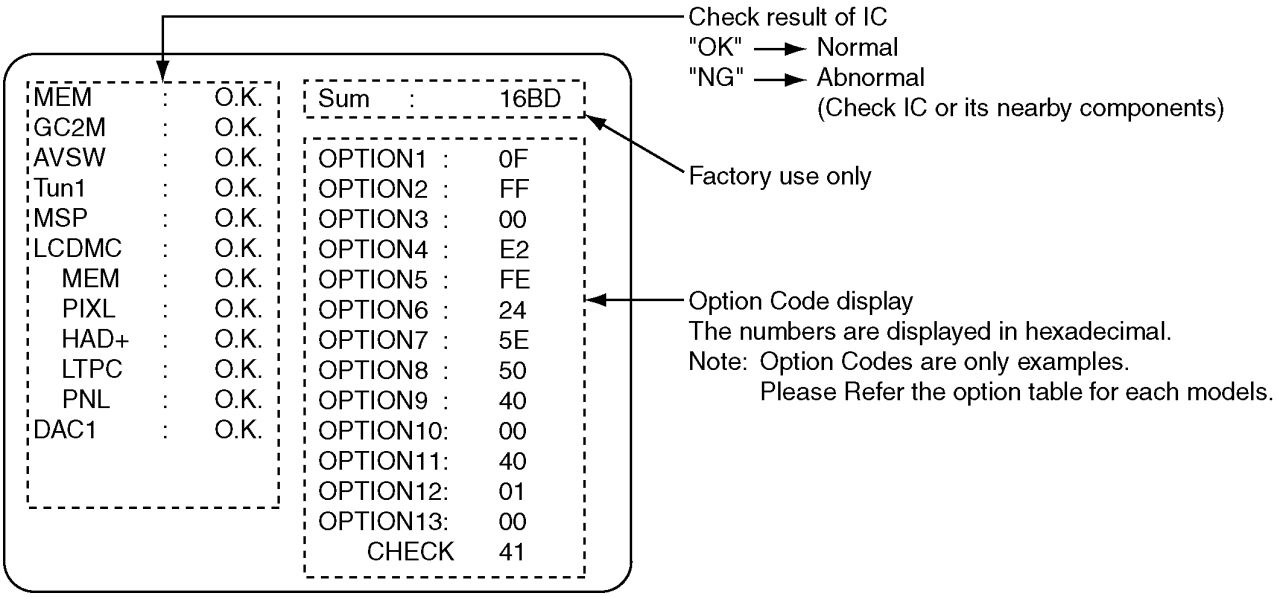
Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

4 Self Check

1. Self-Check is used to automatically check the bus lines and hexadecimal code of the TV set.
2. To get into the Self -Check mode press the [**Down (—/∨)**] button on the customer controls at the front of the set, at the same time pressing the [**SET UP**] button on the remote control, and the screen will show :



If the CCU ports have been checked and found to be incorrect or not located then "--" will appear in place of "O.K.".

Display	Ref. No.	Description	P.C.B.
MEM1	IC1004	EEPROM	DG
GC2M	IC9001	VIDEO PROCESSOR	DG
AVSW	IC4001	AV SWITCH	A
Tun1	TNR001	Tuner	B
MSP	IC2501	Multi Sound Processor	A
LCDMC	IC3002	LCD MCU	DG
MEM	IC3001	EEPROM	DG
PIXL	IC6004	PIXEL CONVERTER	DG
HAD+	IC6003	RGB A/D	DG
LTPC	IC6501	LTP CONTROL	DG
PNL	———	———	———
DAC1	IC4102	EX. I/O	A

5 SERVICE HINTS

5.1. Hotel Mode

Purpose

1. At Hotels, this Mode prevent customer from changing the TV preset data, such as Channel preset data.

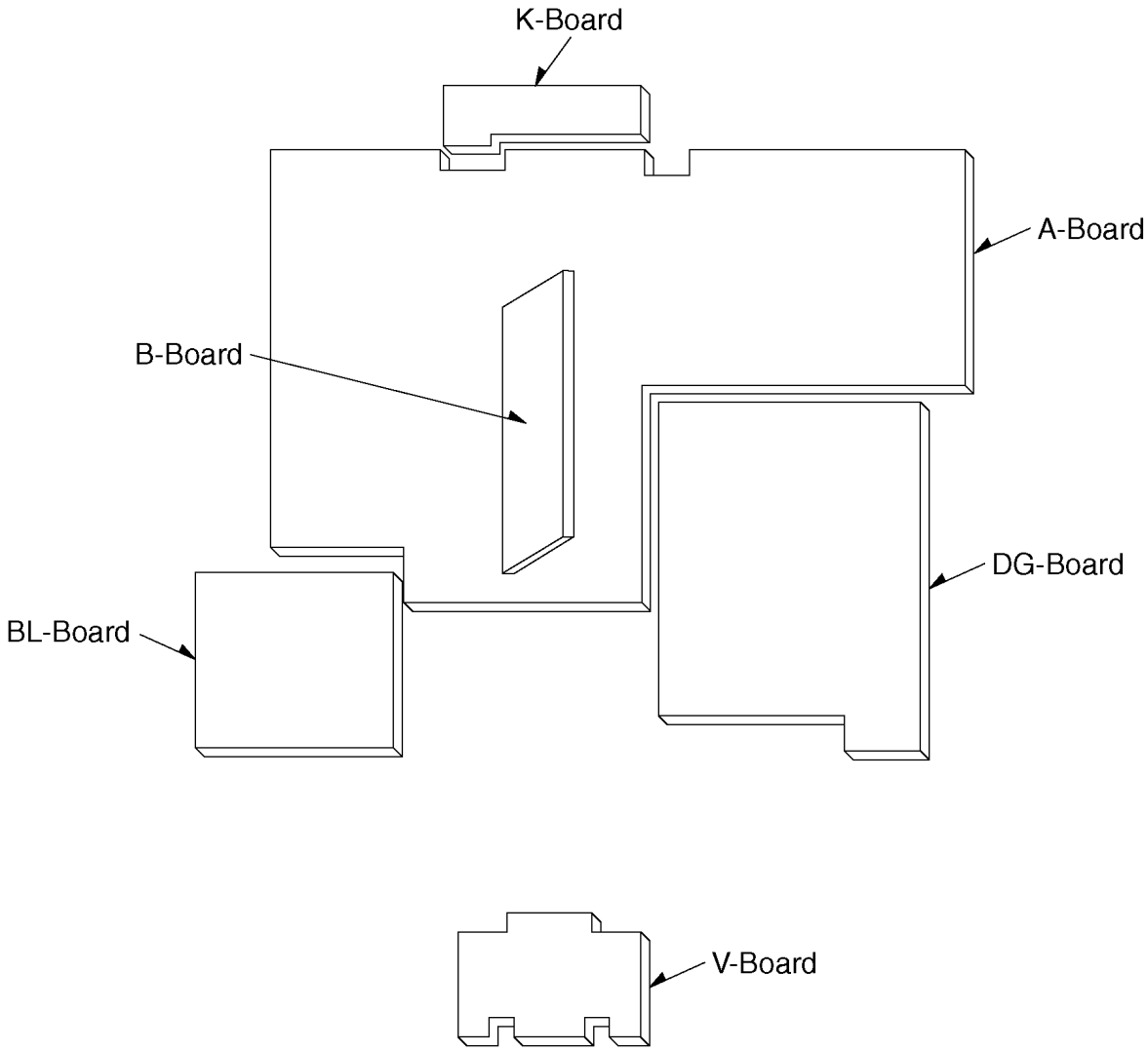
   Note:

   This Mode is useful for hotel, you should not get into "Hotel Mode" with Normal use.

Operation

1. To get into " Hotel Mode", press "Recall" button on the remote control and Channel up "[+/∧]" key on the TV set simultaneously, after setting the "Off-Timer" mode.
2. In this mode, The Channel up and down Function will be able as normal Mode, and The maximum volume level for this mode is set at the current volume level, that means setting at the level before entering the mode. However, other function will be disable.
3. **To exit This mode,** press "SET UP" button on the remote control and the "Volume Down [—/∨]" key on the TV set simultaneously.
   * This Information is informed by Service Manual only.

6 Chassis Board Layout



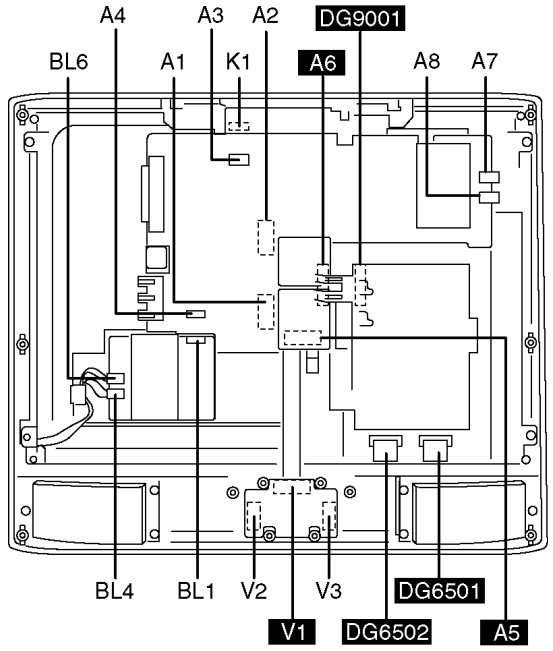
Board Name	Function
A-Board	Audio, Power, Inverter, AV SW
B-Board	Tuner
BL-Board	Inverter
DG-Board	GC2, PCN, MICOM, EEPROM
K-Board	Switch
V-Board	Remote sensor, LED

7 Before servicing

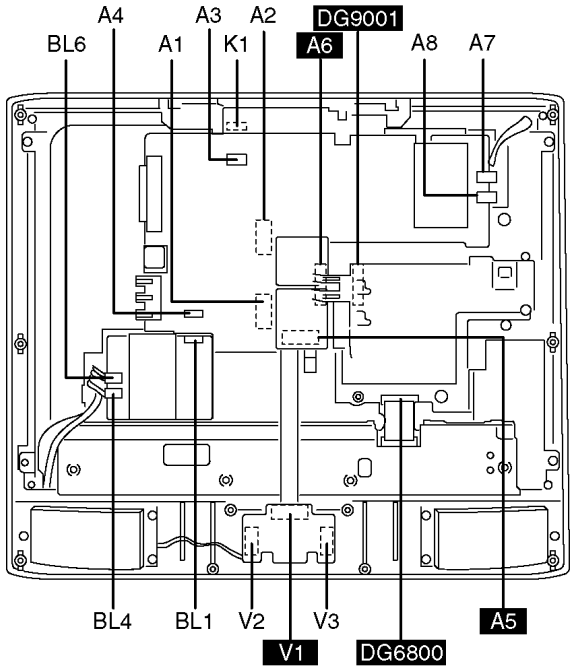
7.1. Kind and location of the flexible cable

Ref No.	Flexible cable	Connector type	Pins	Location	Opposite Ref No.
A6	●	type1	50 pin	A-BOARD	DG9001
A1	-	-	15 pin	A-BOARD	B1
A2	-	-	9 pin	A-BOARD	B2
A7	-	-	2 pin	A-BOARD	Back Light (U)
A8	-	-	2 pin	A-BOARD	Back Light (U)
A3	-	-	4 pin	A-BOARD	K1
A5	●	type2	13 pin	A-BOARD	V1
A4	-	-	11 pin	A-BOARD	BL1
B1	-	-	15 pin	B-BOARD	A1
B2	-	-	9 pin	B-BOARD	A2
BL1	-	-	11 pin	BL-BOARD	A4
BL4	-	-	2 pin	BL-BOARD	Back Light (D)
BL6	-	-	2 pin	BL-BOARD	Back Light (D)
DG9001	●	type3	50 pin	DG-BOARD	A6
DG6800	●	type3	50 pin	DG-BOARD (20inch model only)	LCD Panel
DG6501	●	type4	40 pin	DG-BOARD (17inch model only)	LCD Panel
DG6502	●	type4	40 pin	DG-BOARD (17inch model only)	LCD Panel
K1	-	-	4 pin	K-BOARD	A3
V2	-	-	2 pin	V-BOARD	Speaker (R)
V3	-	-	2 pin	V-BOARD	Speaker (L)
V1	●	type3	13 pin	V-BOARD	A5

<17inch model>

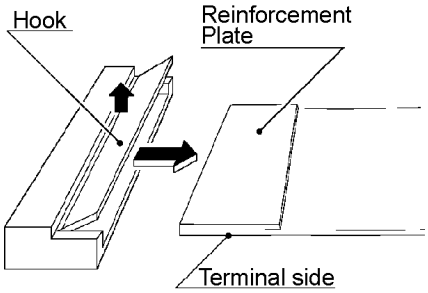


<20inch model>

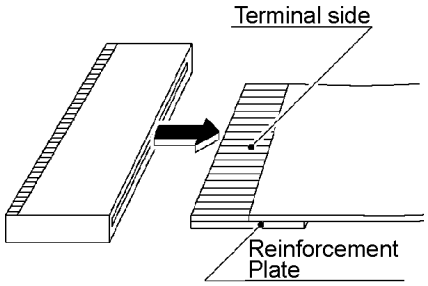


7.2. How to remove the connector

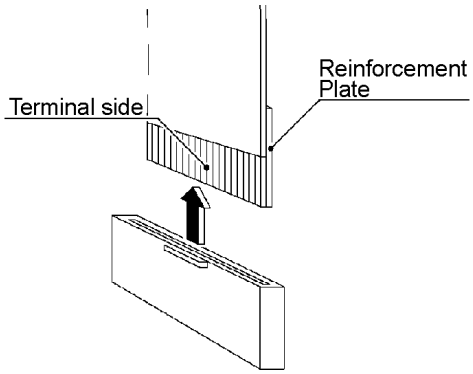
Connector type1



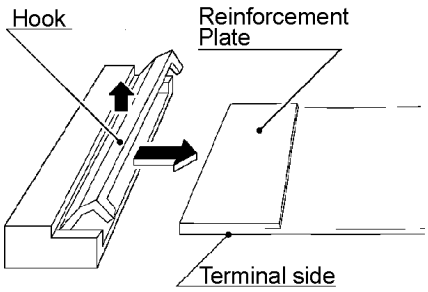
Connector type2



Connector type3



Connector type4

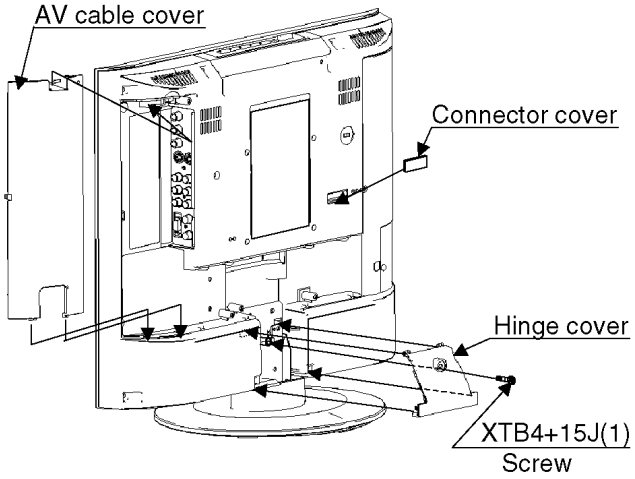


8 Disassembly for Service

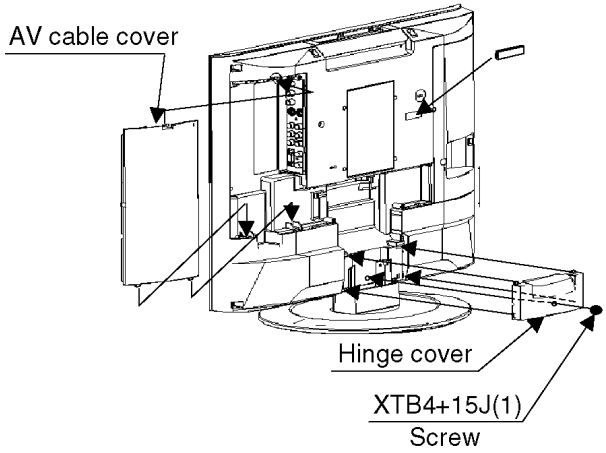
8.1. Hinge cover and AV cable cover

1. Thick cloth and so on is down to damage a LCD screen, and the unit is pushed down.
2. Remove the AV cable cover.
3. Remove the screw (1pcs), and detach the hinge cover.

<17inch model>



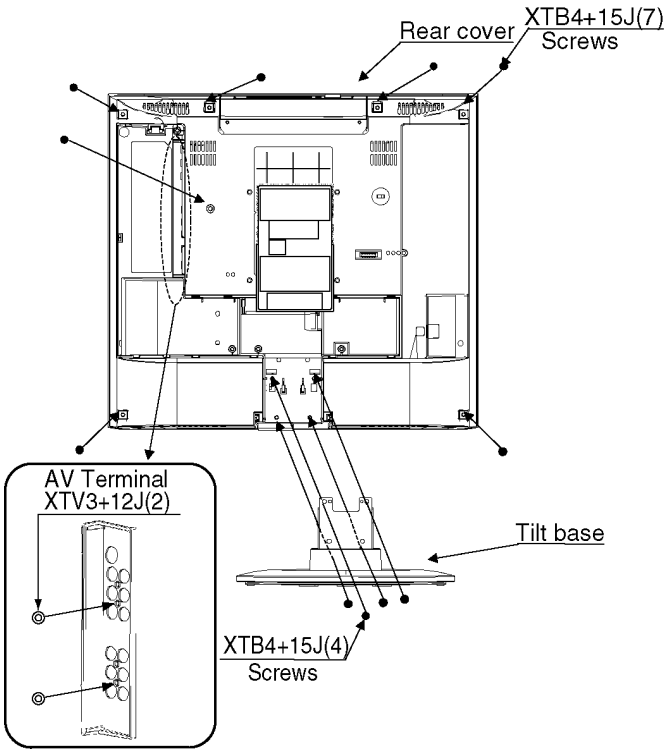
<20inch model>



8.2. Rear cover and Tilt base

1. Remove the screws (7pcs) (17inch model)/(9pcs) (20inch model), and detach the rear cover.
2. Remove the screws (4pcs), and detach the tilt base.
3. Remove the screws (2pcs).

<17inch model>



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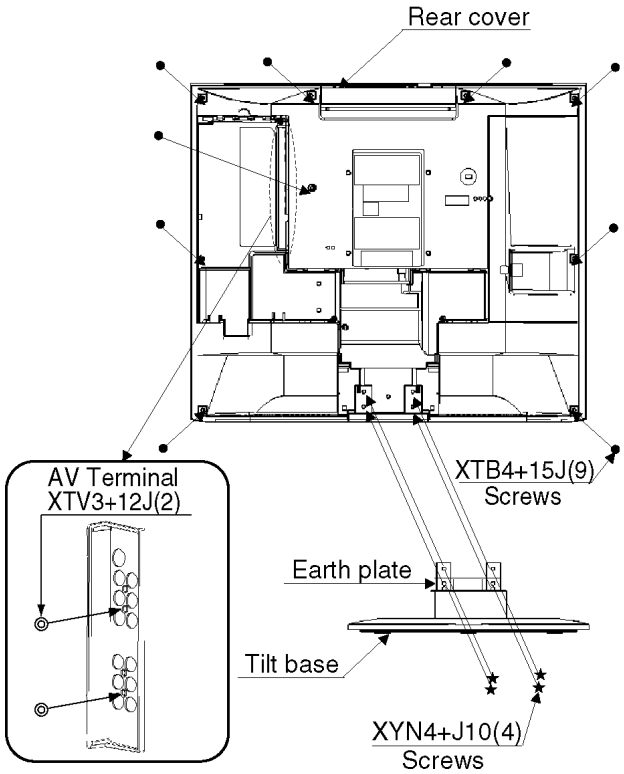


Caution:

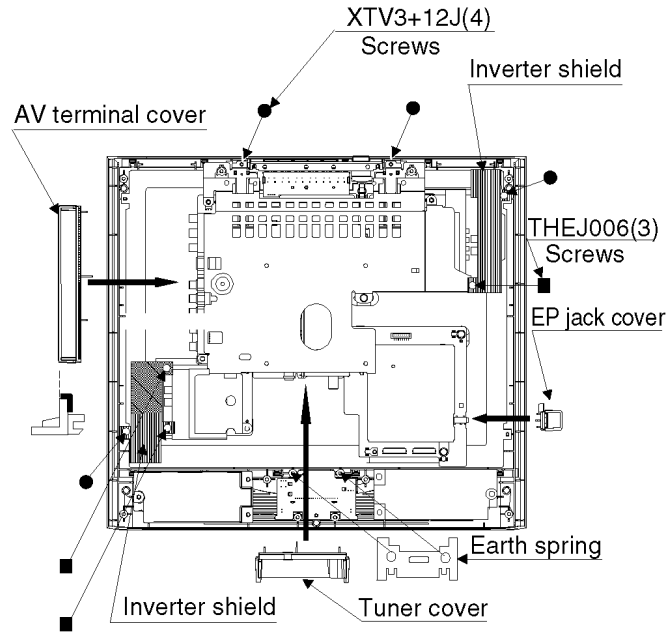
PCB Fixing screws driving torque: 0.2-0.3N • m (2-3kg • mm)

Do not tighten screws so hard.

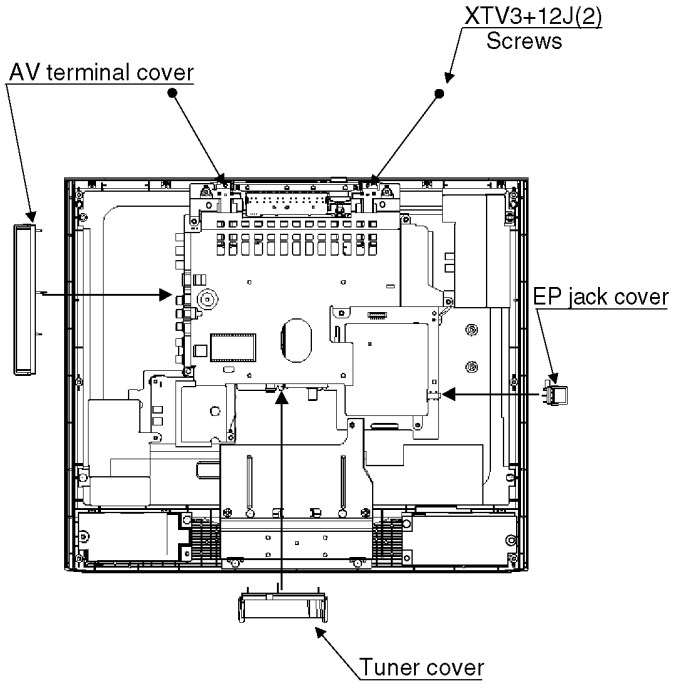
8.3. AV terminal cover, EP jack cover, and Tuner cover

1. Remove the AV terminal cover.
2. Remove the EP jack cover.
3. Remove the tuner cover.
4. Remove the screws (4pcs) (17inch moel)/(2pcs) (20inch model).
5. Remove the screws (3pcs)(17inch model), and detach the inverter shield (17inch model).

<17inch model>



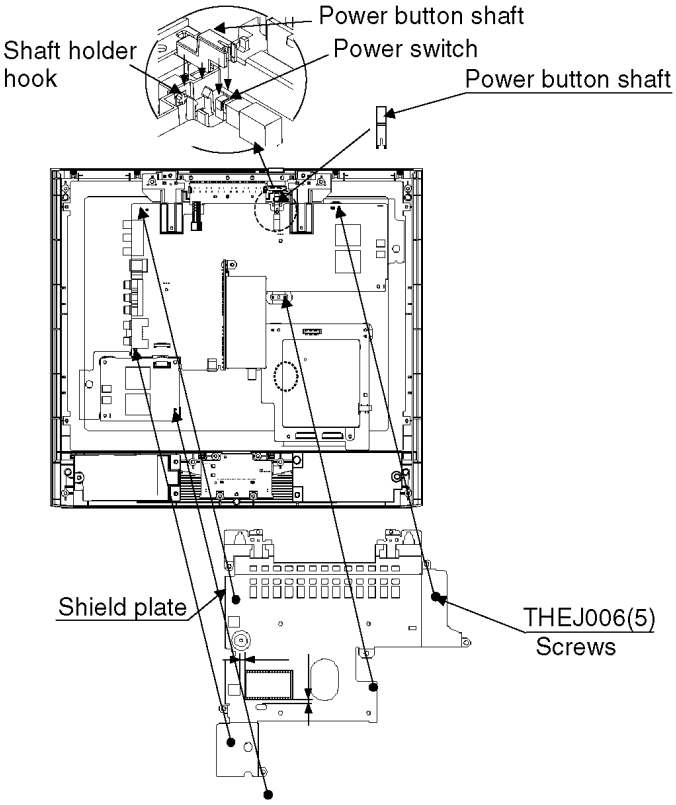
<20inch model>



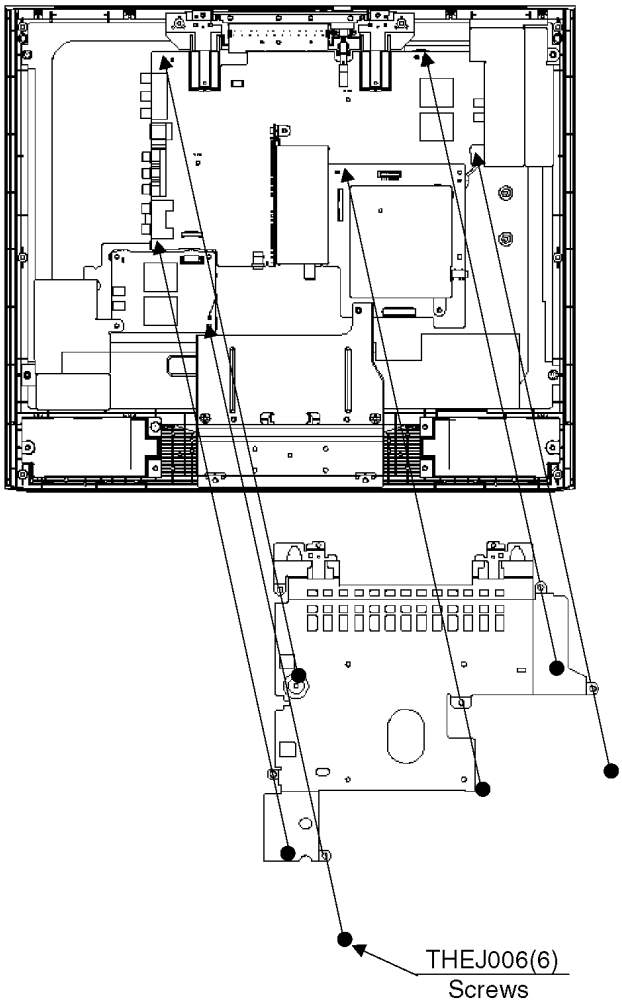
8.4. Shield plate

1. Remove the screws (5pcs) (17inch model)/(6pcs) (20inch model), and detach the shield plate.
2. Disengage the shaft holder hook and detach the power button shaft.
3. Disconnect the coupler (A3).

<17inch model>



<20inch model>



Caution:

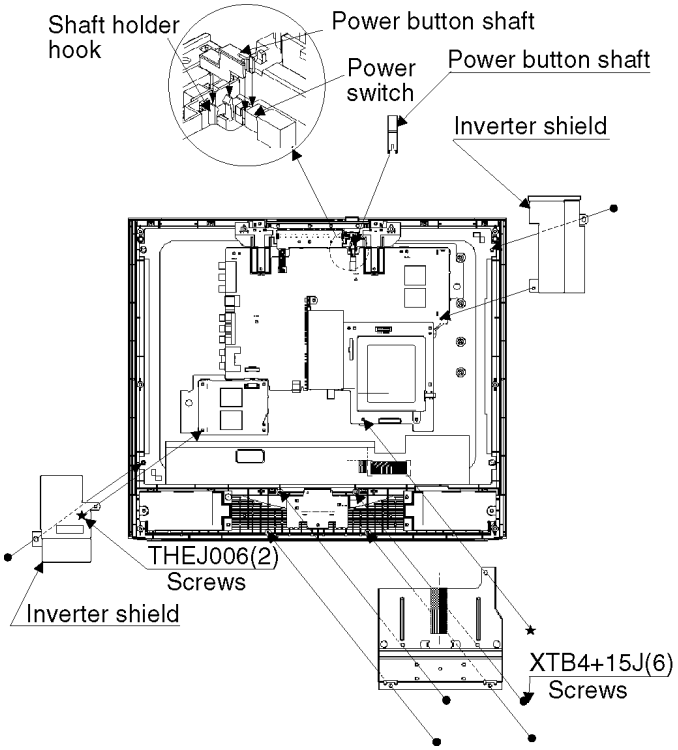
PCB Fixing screws driving torque: 0.2-0.3N・m (2-3kg・mm)

Do not tighten screws so hard.

8.5. Inverter shield and Lock hinge (20inch model)

1. Remove the screws (6pcs) and the screw (1pcs), and detach the lock hinge and the inverter shield.
2. Disengage the shaft holder hook and detach the power button shaft.
3. Disconnect the coupler (A3).

<20inch model>



Caution:

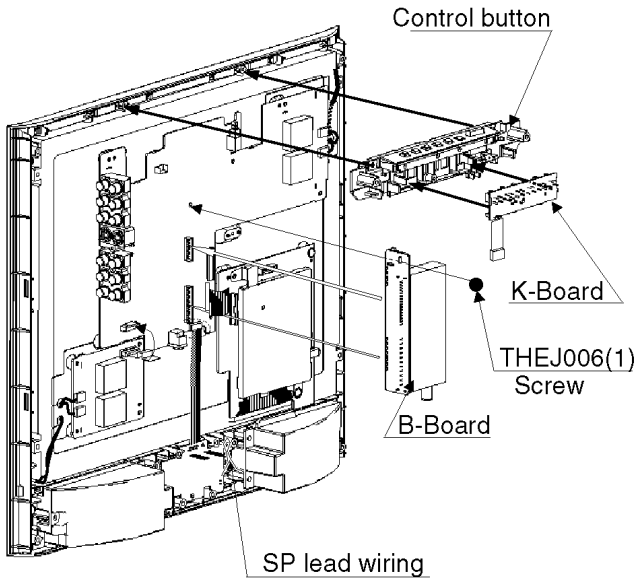
PCB Fixing screws driving torque: 0.2-0.3N・m (2-3kg・mm)

Do not tighten screws so hard.

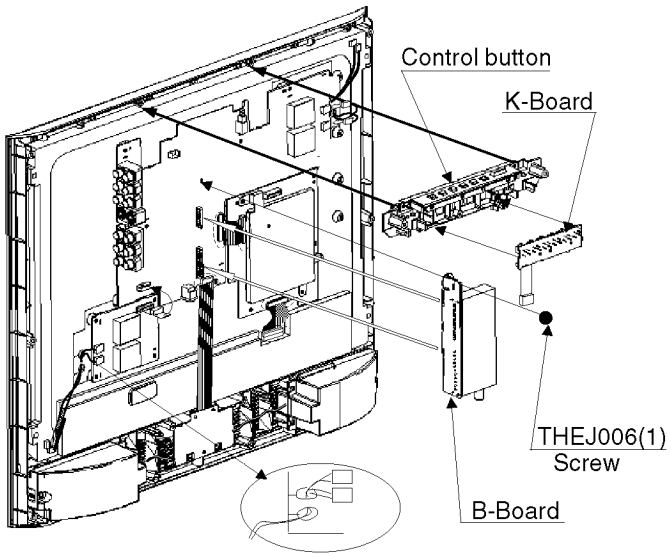
8.6. B-Board and K-Board

1. Remove the K-Board
2. Remove the screw (1pcs), and detach the B-Board.

<17inch model>



<20inch model>



Caution:

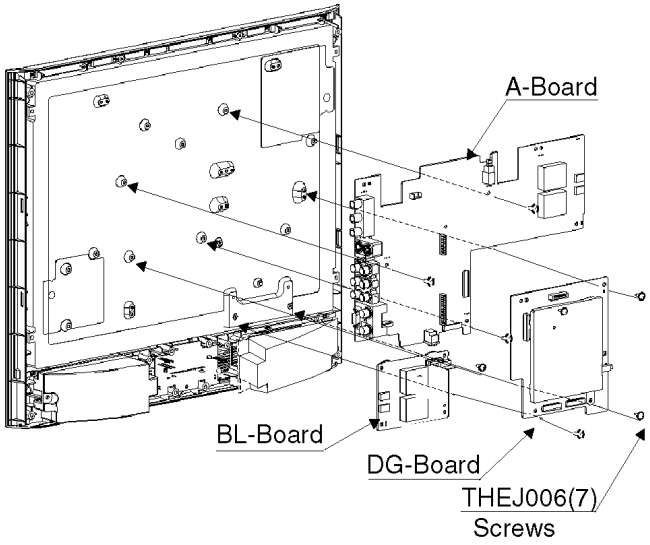
PCB Fixing screws driving torque: 0.2-0.3N • m (2-3kg • mm)

Do not tighten screws so hard.

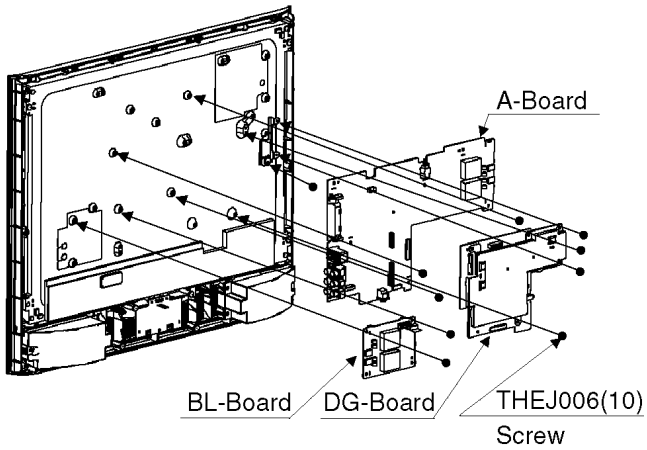
8.7. BL-Board, DG-Board and A-Board

1. Remove the screw (1pcs) (17inch model)/(2pcs) (20inch model), and detach the BL-Board.
2. Remove the screws (3pcs) (17inch model)/(5pcs) (20inch model), and detach the DG-Board.
3. Remove the screws (3pcs), and detach the A-Board.

<17inch model>



<20inch model>



Caution:

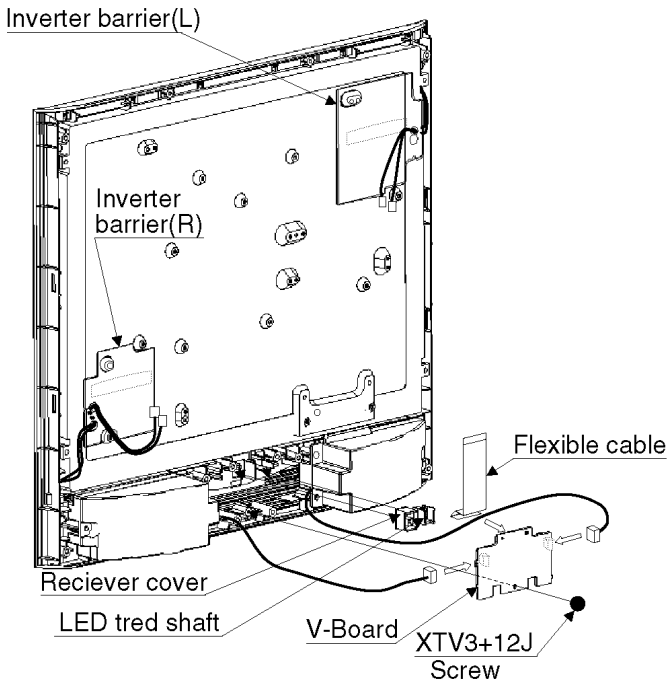
PCB Fixing screws driving torque: 0.2-0.3N • m (2-3kg • mm)

Do not tighten screws so hard.

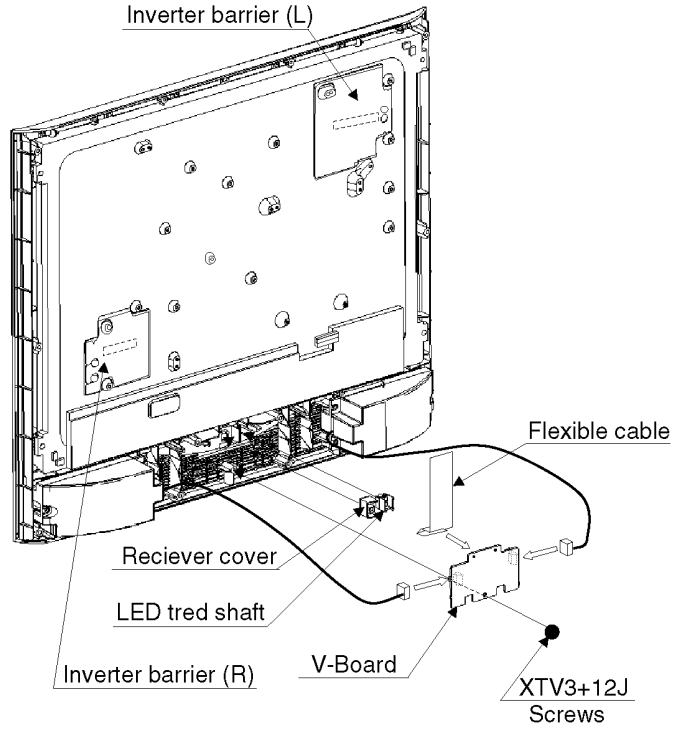
8.8. V-Board

1. Remove the screw (1pcs), and detach the V-Board.

<17inch model>



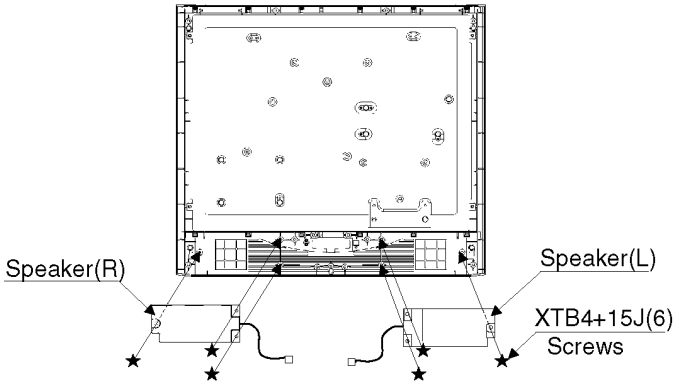
<20inch model>



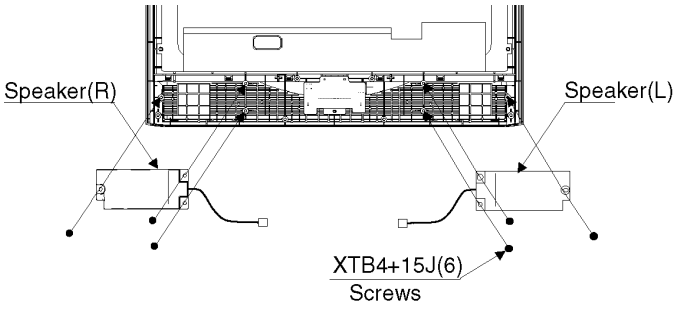
8.9. Speaker

1. Remove the screws (3pcs), and detach the speaker (L).
2. Remove the screws (3pcs), and detach the speaker (R).

<17inch model>



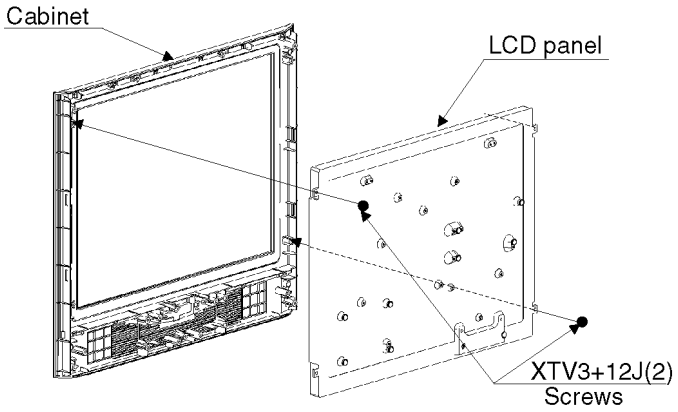
<20inch model>



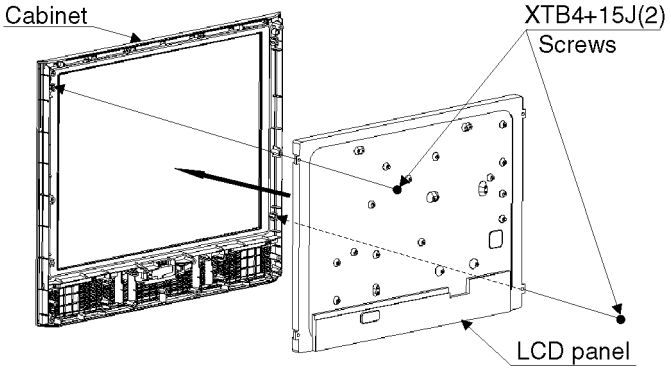
8.10. LCD panel

1. Remove the screws (2pcs), and detach the LCD panel.

<17inch model>



<20inch model>



9 Service Mode Function

MPU controls the functions switching for each IICs through IIC bus in this chassis. The following setting and adjustment can be adjusted by remote control in Service Mode.

9.1. How to enter SERVICE 1

1. In sound menu, set BASS to MAXIMUM, and set TREBLE to MINIMUM.
2. Simultaneously press **INDEX** button on remote control and **DOWN** button [−/∨] on the TV set.

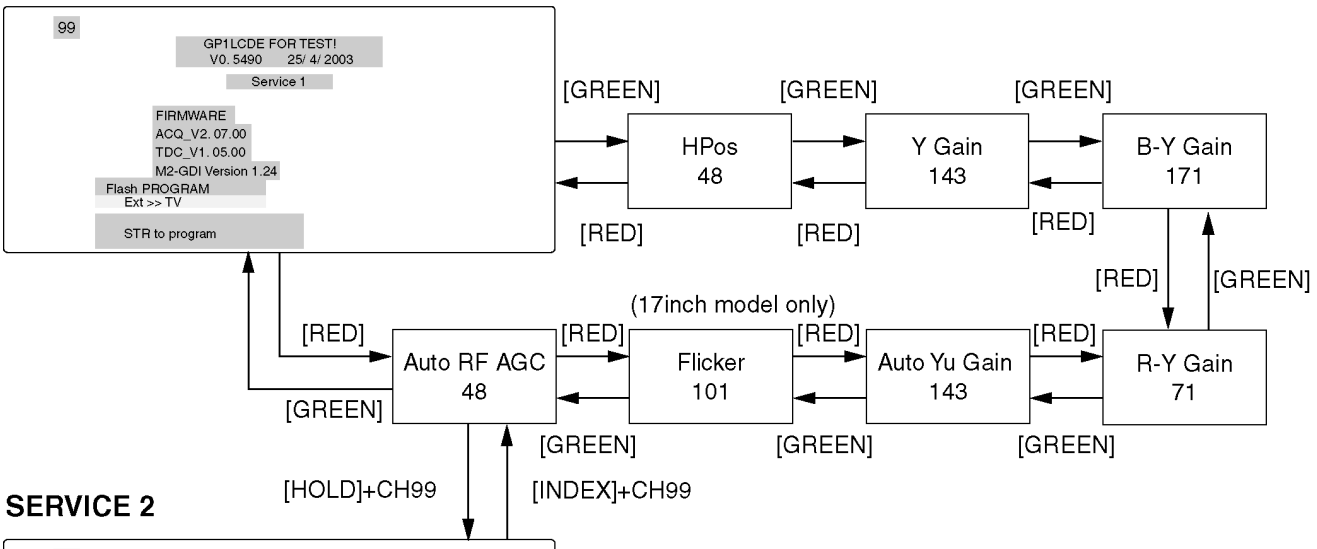
9.2. How to enter SERVICE 2

1. Set the channel to CH99.
2. Press HOLD button on remote control.

Note:

To exit to Service mode, press N or Power button on remote control.

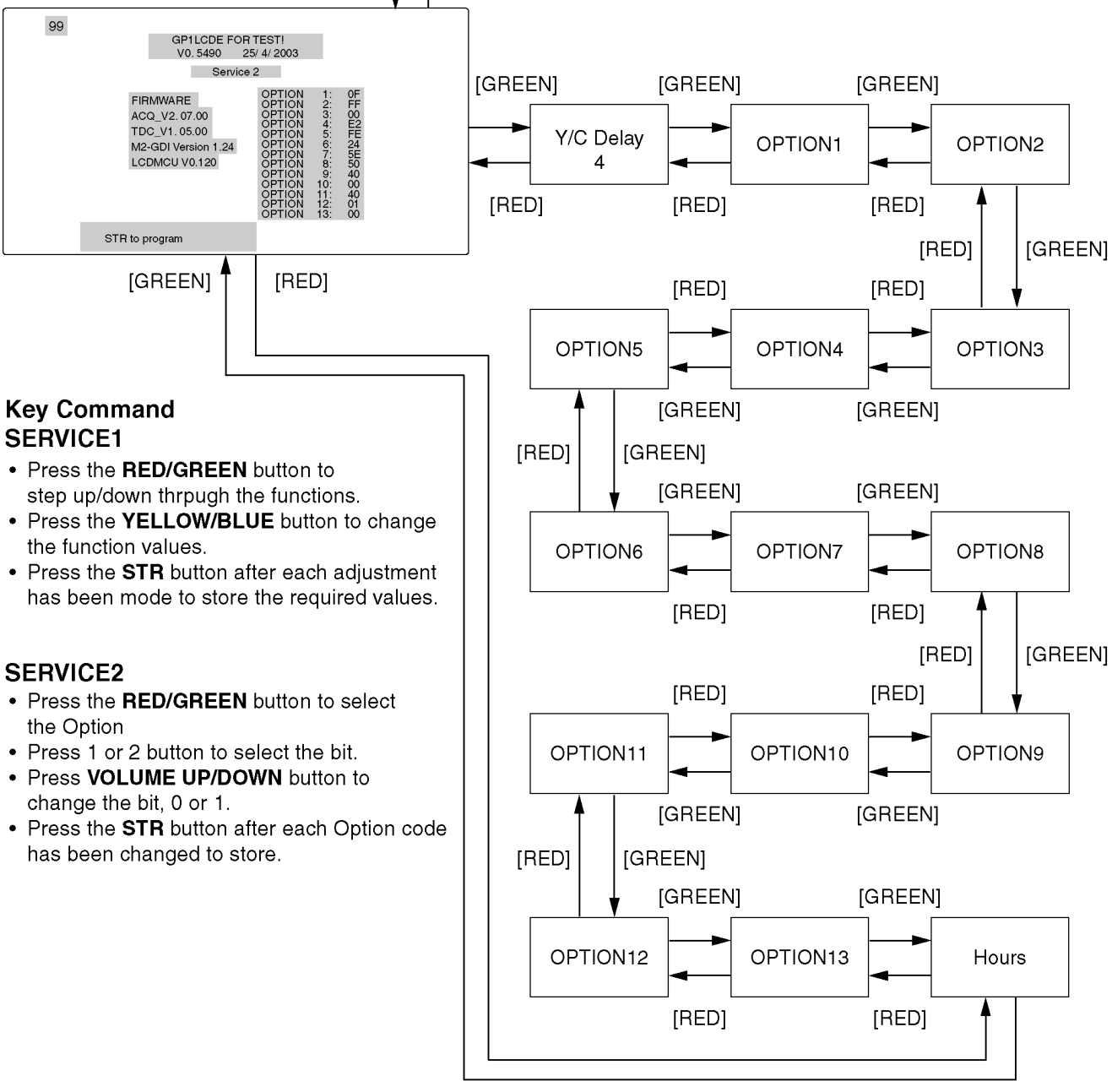
SERVICE 1



[HOLD]+CH99

[INDEX]+CH99

SERVICE 2



Key Command

SERVICE1

- Press the **RED/GREEN** button to step up/down thrpugh the functions.
- Press the **YELLOW/BLUE** button to change the function values.
- Press the **STR** button after each adjustment has been mode to store the required values.

SERVICE2

- Press the **RED/GREEN** button to select the Option
- Press 1 or 2 button to select the bit.
- Press **VOLUME UP/DOWN** button to change the bit, 0 or 1.
- Press the **STR** button after each Option code has been changed to store.

9.3. Option Description

option1		0F		
	b0	1	Colour system	Auto(1)
	b1	1		SECAM(1)
	b2	1		NTSC(1)
	b3	1		M.NTSC(1)
	b4	0	free	
	b5	0	free	
	b6	0	free	
	b7	0	free	
option2		FF		
	b0	1	CH Plan	ASIA / M.E. / HK/UK / CHINA(1)
	b1	1		NZ/INDNES(1)
	b2	1		AUSTRALIA(1)
	b3	1		E.EUROPE(1)
	b4	1		SPECIAL(1)
	b5	1		AMERICA(1)
	b6	1		CATV(1)
	b7	1		JAPAN(1)
option3		00		
	b0	0	sub picture	without sub-picture(0), with sub-picture(1)
	b1	0	2tuner	2tuner(1),1tuner(0)
	b2	0	VGA	enable(1)
	b3	0	AV5	enable(1)
	b4	0	Wide (16:9)	16:9 (1), 4:3 (0) (change multi window/aspect operation)
	b5	0	HYPER	UHF only (0), UHF/VHF (1)
	b6	0	SIF	I only(0), BG only(1)
	b7	0		I/BG/DK/L(2), BG/DK(3)
option4		E2		
	b0	0	A2 enable	enable(1)
	b1	1		not use
	b2	0		not use
	b3	0		not use
	b4	0	NICAM enable	enable(1)
	b5	1		not use
	b6	1		not use
	b7	1		not use
option5		FE		
	b0	0	A2 select 6.5MHz	5.742MHz(0) 6.742MHz(1)
	b1	1	NICAM priority	ASIA/M.E.(1)
	b2	1		HK/UK(1)
	b3	1		CHINA(1)
	b4	1		NZ/INDN(1)
	b5	1		AUSTRA(1)
	b6	1		E.EURO(1)
	b7	1		SPECIAL(1)
option6		24		
	b0	0	Ext. HV input	without HV input(0) / with HV input(1)
	b1	0	SASO enable	SASO enable(1)
	b2	1	Noise mute	Noise mute enable(0)
	b3	0	Monitor out AV1 mute	Monitor out AV1 mute(1)
	b4	0	Tuner no refresh	Refresh tuner (0), no refresh (1)
	b5	1	Tuner	MACO tuner (1), Others (0)
	b6	0	free	
	b7	0	IF I2C	I2C controlled Tuner IF module (1)
option7		5E		
	b0	0	Power up EC-Mode	Power on EC enable (1)
	b1	1	CH Blanking	Blanking enable (1)
	b2	1	AV Blanking	Blanking enable (1)
	b3	1	Auto WIDE	WSS enable only in aspect Auto (0), WSS always enable (1)
	b4	1	Volume correction	TV Volume coorrection enable (1)
	b5	0	AVLink	Q-Link off selectable in menu (1)
	b6	1	MPX/NICAM display	Display NICAM (0), Display MPX (1)
	b7	0	Owner ID	not use (0)

option8		50		
	b0	0	Teletext CH Refresh	not use
	b1	0	Geomagnetic Sensor	Geomagnetic sensor enable(1)
	b2	0	Geomagnetic Polarity	Geomagnetic polarity +(0), -(1)
	b3	0	RF Attenuation	Enable(1)
	b4	1	Fine tuning	Enable(1)
	b5	0	Search speed	Slow(1) Fast(0)
	b6	1	TEXT	Enable(1)
	b7	0	TEXT TOP	TOP enable (1)
option9		40		
	b0	0	Dolby	Dolby enable (1)
	b1	0	3D Subwoofer	Subwoofer enable (1) Dolby model should be 0.
	b2	0	Dolby Virtual	Dolby Virtual enable (1)
	b3	0	Amp	with Amp(0) / without Amp(1)
	b4	0	SoundExt.DA	without SoundExt.DA(0) / with SoundExt.DA(1)
	b5	0	shipping Sound menu	MUSIC(0) / CINEMA(1)
	b6	0	Volume curve	Volume curve1(0), curve2(1)
	b7	0	LIPSYNC	LIPSYNC enable (1)
option10		00		
	b0	0	OSD language	not use
	b1	0	ACI all country	ACI enable(1), only Netherlands(0)
	b2	0	ACI auto MP	ACI auto multi package enable (1)
	b3	0	ACI offset	ACI offset for VCR prog. enable(1)
	b4	0	Blue Back	not use
	b5	0	BC Safety	Reserved
	b6	0	Protect XPR	Reserved
	b7	0	Protect 5V detect	Protection input enable(1)
option11		40		
	b0	0	Acuity Demo	enable(1)
	b1	0	Picture Shift	enable(1)
	b2	0	Shop mode	enable(1)
	b3	0	User aspect Just	enable(1)
	b4	0	User aspect 14:9	enable(1)
	b5	0	NICAM C4 bit	enable(1)
	b6	1	ID-1	enable(1)
	b7	0	1080I	enable(1)
option12		01/41	**Area Option**	01 for 17LA1, 41 for 20LA1
	b0	1	Asia	Asia(1),europe(0)
	b1	0	Australia	not use
	b2	0	Ireland/India	Ireland(1)
	b3	0	UK	UK(1)
	b4	0	MELCOA	not use
	b5	0	28 inch	28 inch (1) when only Large size=0, Wide=1, PTV=0
	b6	0/1	Large size	17 inch (0), 20 inch (1)
	b7	0	free	
option13		00	**Temporary**	
	b0	0	GC2V ES2	ES2(1), ES1(0)
	b1	0	Tuner IF 38.9	38.9MHz(0). 39.5MHz(1) [UK/Ireland]
	b2	0	NewALBD	Zoom1 or Zoom3 (0), Zoom1 or 14:9(1)
	b3	0		
	b4	0		
	b5	0		
	b6	0		
	b7	0		

9.4. Option Code Setting (17 inch model)

If the memory IC (IC1004) or DG Board is replaced, option code should be re-memorized.

Spare part of IC1004 is already memorized all Data for TX-17LA1M.

If you use for other model, you should re-memorized the different option code in SERVICE 2 mode.

TX-17LA1M		TX-17LA1Q		TX-17LA1Z		TX-17LA1X		TX-17LA1T		TC-17LA1H	
OPTION		OPTION		OPTION		OPTION		OPTION		OPTION	
OPTION1	0F	OPTION1	0F	OPTION1	0F	OPTION1	0F	OPTION1	0F	OPTION1	0F
OPTION2	FF	OPTION2	FF	OPTION2	FF	OPTION2	FF	OPTION2	FF	OPTION2	FF
OPTION3	00	OPTION3	00	OPTION3	00	OPTION3	00	OPTION3	00	OPTION3	00
OPTION4	E2	OPTION4	E2	OPTION4	E2	OPTION4	E2	OPTION4	E2	OPTION4	E2
OPTION5	FE	OPTION5	FE	OPTION5	FE	OPTION5	FE	OPTION5	FE	OPTION5	FE
OPTION6	24	OPTION6	24	OPTION6	24	OPTION6	20	OPTION6	24	OPTION6	24
OPTION7	5E	OPTION7	5E	OPTION7	5E	OPTION7	5E	OPTION7	5E	OPTION7	5E
OPTION8	50	OPTION8	D0	OPTION8	50	OPTION8	50	OPTION8	50	OPTION8	10
OPTION9	40	OPTION9	40	OPTION9	40	OPTION9	40	OPTION9	40	OPTION9	40
OPTION10	00	OPTION10	21	OPTION10	00	OPTION10	00	OPTION10	01	OPTION10	00
OPTION11	40	OPTION11	40	OPTION11	40	OPTION11	40	OPTION11	40	OPTION11	44
OPTION12	01	OPTION12	03	OPTION12	01	OPTION12	01	OPTION12	01	OPTION11	01
OPTION13	00	OPTION13	00	OPTION13	00	OPTION13	00	OPTION12	00	OPTION12	00

9.5. Option Code Setting (20 inch model)

If the memory IC (IC1004) or DG Board is replaced, option code should be re-memorized.

Spare part of IC1004 is already memorized all Data for TX-20LA1M.

If you use for other model, you should re-memorized the different option code in SERVICE 2 mode.

TX-20LA1M		TX-20LA1Q		TX-20LA1Z		TX-20LA1X		TX-20LA1T		TC-20LA1H	
OPTION		OPTION		OPTION		OPTION		OPTION		OPTION	
OPTION1	0F	OPTION1	0F	OPTION1	0F	OPTION1	0F	OPTION1	0F	OPTION1	0F
OPTION2	FF	OPTION2	FF	OPTION2	FF	OPTION2	FF	OPTION2	FF	OPTION2	FF
OPTION3	00	OPTION3	00	OPTION3	00	OPTION3	00	OPTION3	00	OPTION3	00
OPTION4	E2	OPTION4	E2	OPTION4	E2	OPTION4	E2	OPTION4	E2	OPTION4	E2
OPTION5	FE	OPTION5	FE	OPTION5	FE	OPTION5	FE	OPTION5	FE	OPTION5	FE
OPTION6	24	OPTION6	24	OPTION6	24	OPTION6	20	OPTION6	24	OPTION6	24
OPTION7	5E	OPTION7	5E	OPTION7	5E	OPTION7	5E	OPTION7	5E	OPTION7	5E
OPTION8	50	OPTION8	D0	OPTION8	50	OPTION8	50	OPTION8	50	OPTION8	10
OPTION9	40	OPTION9	40	OPTION9	40	OPTION9	40	OPTION9	40	OPTION9	40
OPTION10	00	OPTION10	21	OPTION10	00	OPTION10	00	OPTION10	01	OPTION10	00
OPTION11	40	OPTION11	40	OPTION11	40	OPTION11	40	OPTION11	40	OPTION11	44
OPTION12	41	OPTION12	43	OPTION12	41	OPTION12	41	OPTION12	41	OPTION11	41
OPTION13	00	OPTION13	00	OPTION13	00	OPTION13	00	OPTION12	00	OPTION12	00

11 Block and Schematic Diagram

11.1. Schematic Diagram Notes

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.

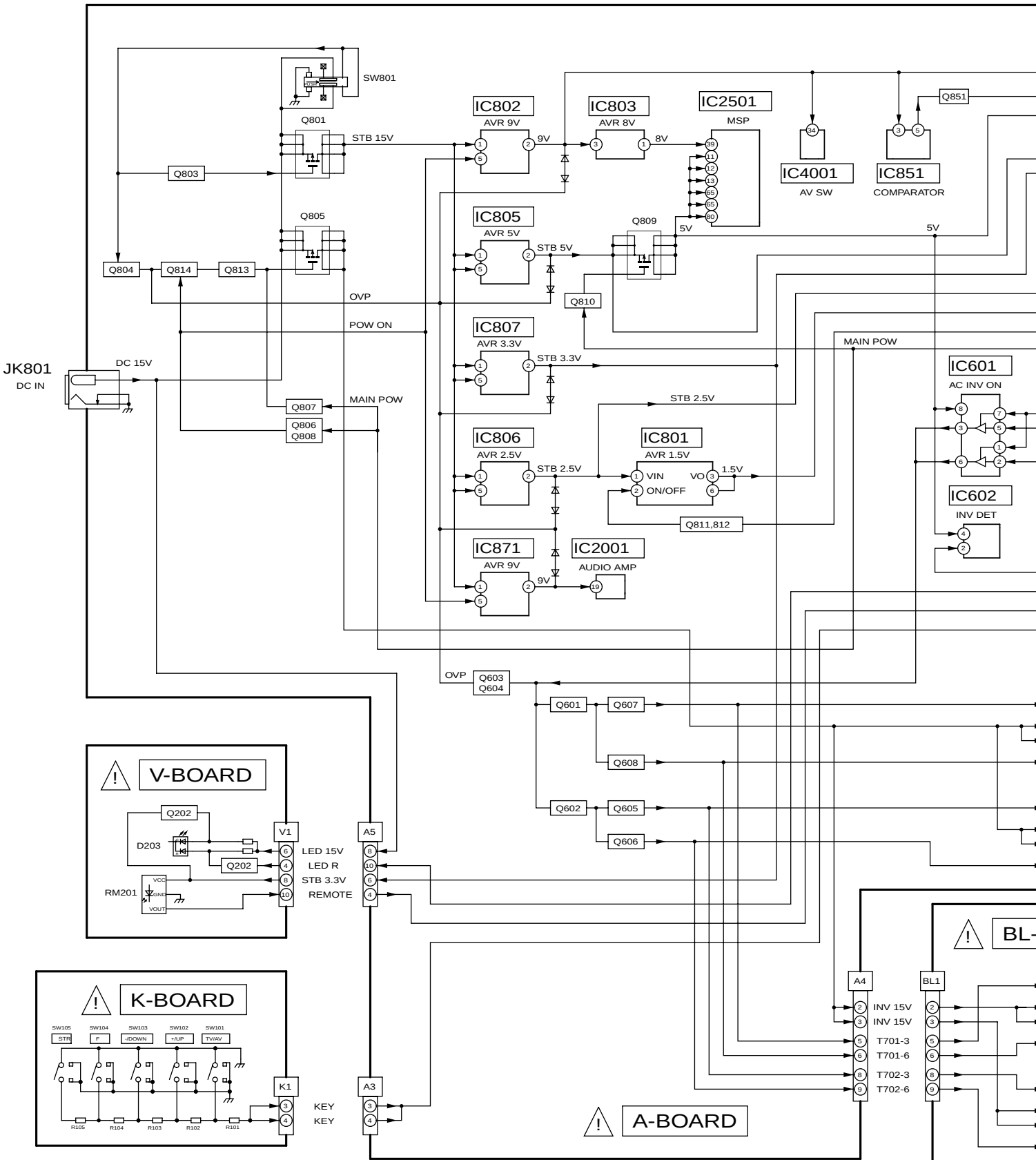
Notes:

1. **Resistor**
   All resistors are cabon 1/4W resistor, unless marked as follows:
   Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).
   - ◯ : Nonflammable
   - △ : Solid
   - ▨ : Wire Wound
   - ⊠ : Metal Oxide
   - ◎ : Metal Film
   - ⊗ : Fuse:
2. **Capacitor**
   All capacitors are ceramic 50V capacitor, unless marked as follows:
   Unit of capacitance is μF, unless otherwise noted.
   - ⊗ : Temperature Compensation
   - Ⓜ : Polyester
   - ⓜ : Metalized Polyester
   - ⊠ : Polypropylene
   - : Electrolytic
   - : Bipolar
   - Ⓣ : Dipped Tantalum
   - Ⓩ : Z-Type
3. Coil
   Unit of inductance is μF, unless otherwise noted.
4. Test Point
   - ⚲ : Test Point position
5. Earth Symbol
   - ⏚ : Chassis Earth (Cold)
   - ⏚ : Line Earth (Hot)
6. Voltage Measurement
   Voltage is measured by a DC voltmeter.
   Conditions of the measurement are the following:
   - Power Source ..... AC 100-240V, 50/60Hz
   - Receiving Signal ..... Colour Bar signal (RF)
   - All customer's controls ..... Maximum positions
7. Number in red circle indicates waveform nember.
   (See waveform pattern table.)
8. When arrow mark (↗) is found, connection is easily found from the direction of arrow
9. Indicates the major signal flow. : Video ➡ Audio ⇨
10. This schematic diagram is the latest at the time of printing and subject to change without notice.

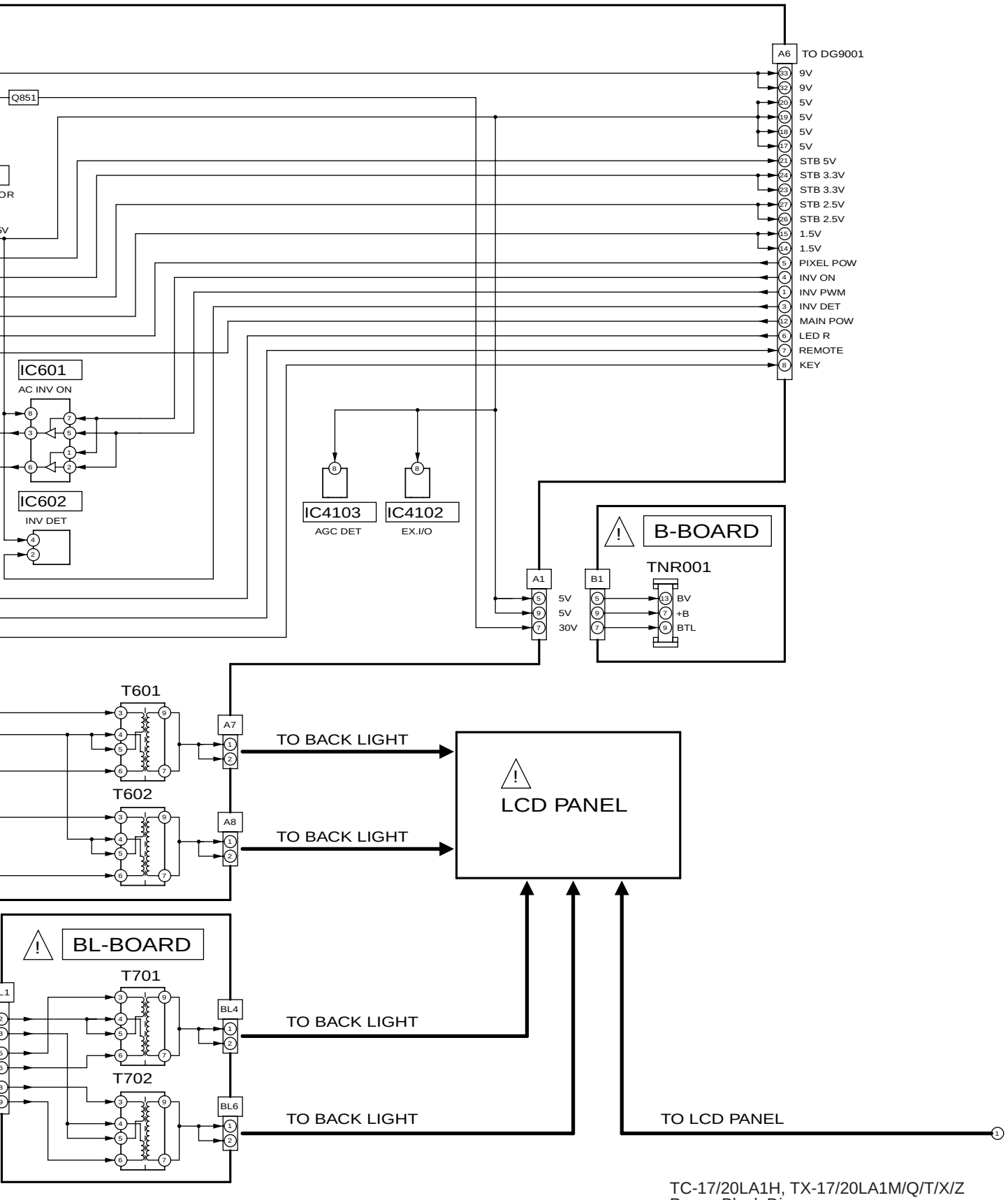
Remarks:

1. The Power Circuit contains a circuit area which uses a separate power supply to isolate the earth connection.
   The circuit is defined by HOT and COLD indications in the schematic diagram. Take the follwing precautions.
   All circuits, except the Power Circuit, are cold.
   Precautions
   a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
   b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
   c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
   Connect the earth of instruments to the earth connection of the circuit being measured.
   d. Make sure to disconnect the power plug before removing the chassis.
2. Following diodes are interchangeable.
   MA150- MA162 (Replacement part)

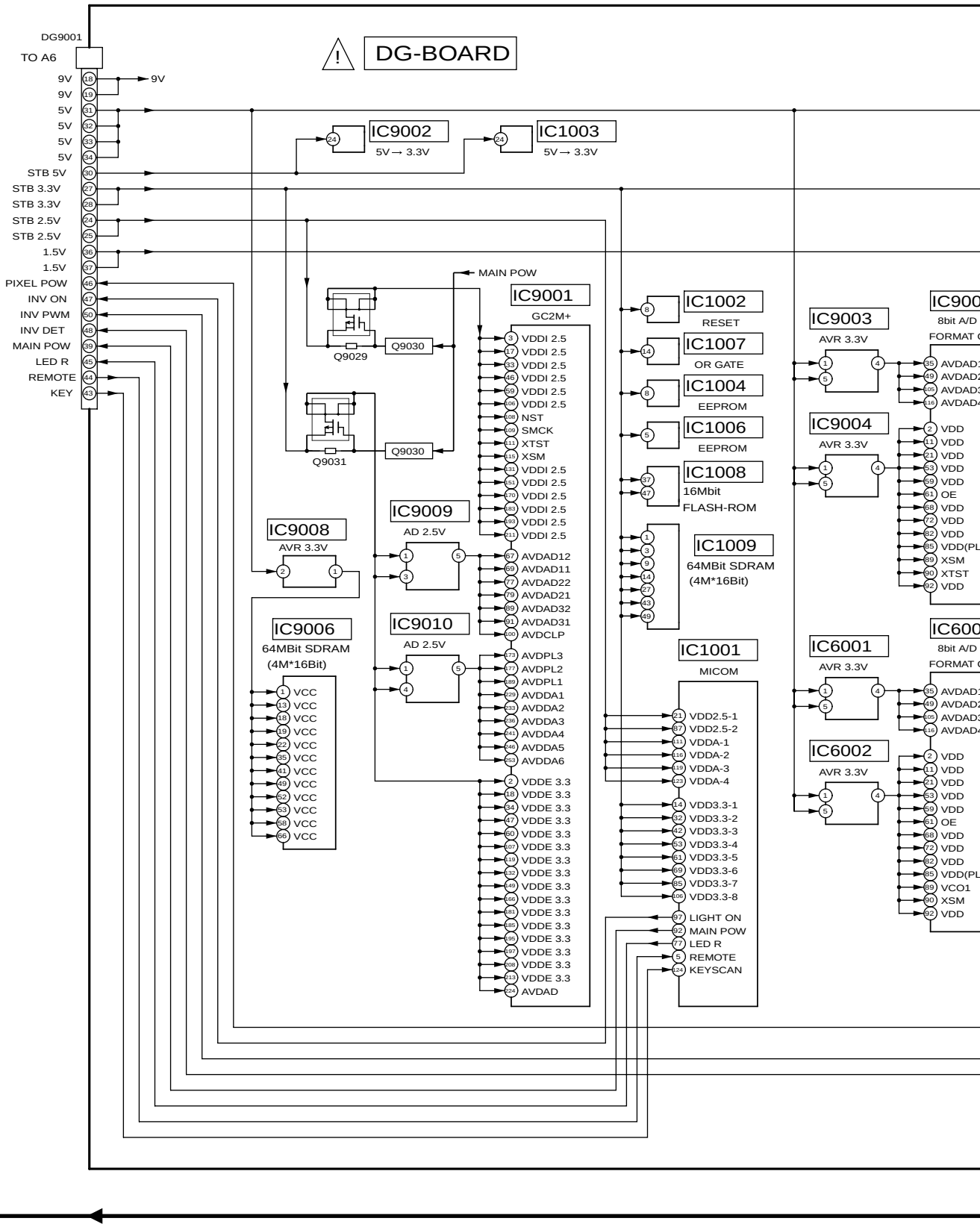
11.2. Power Block Diagram



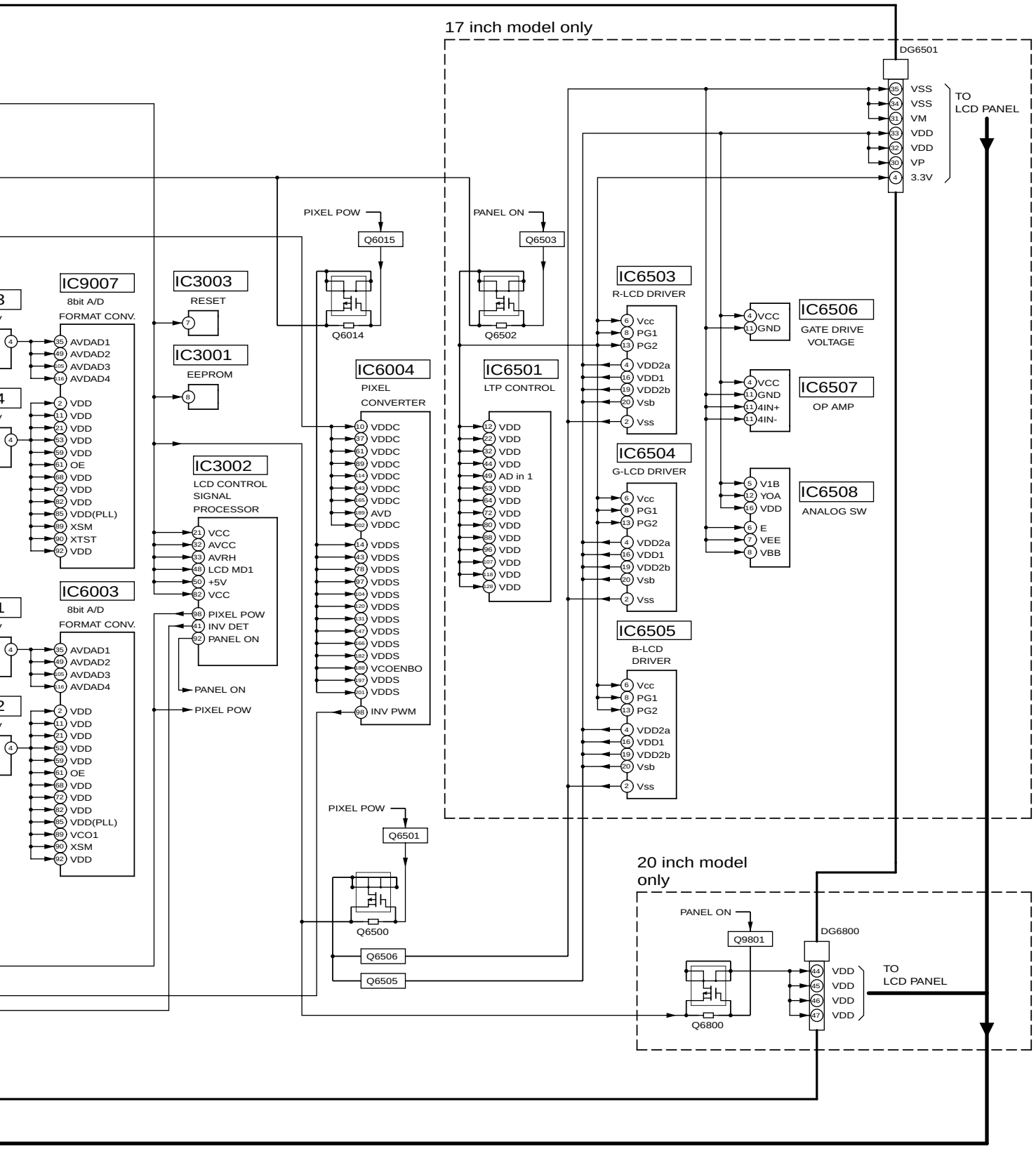
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram

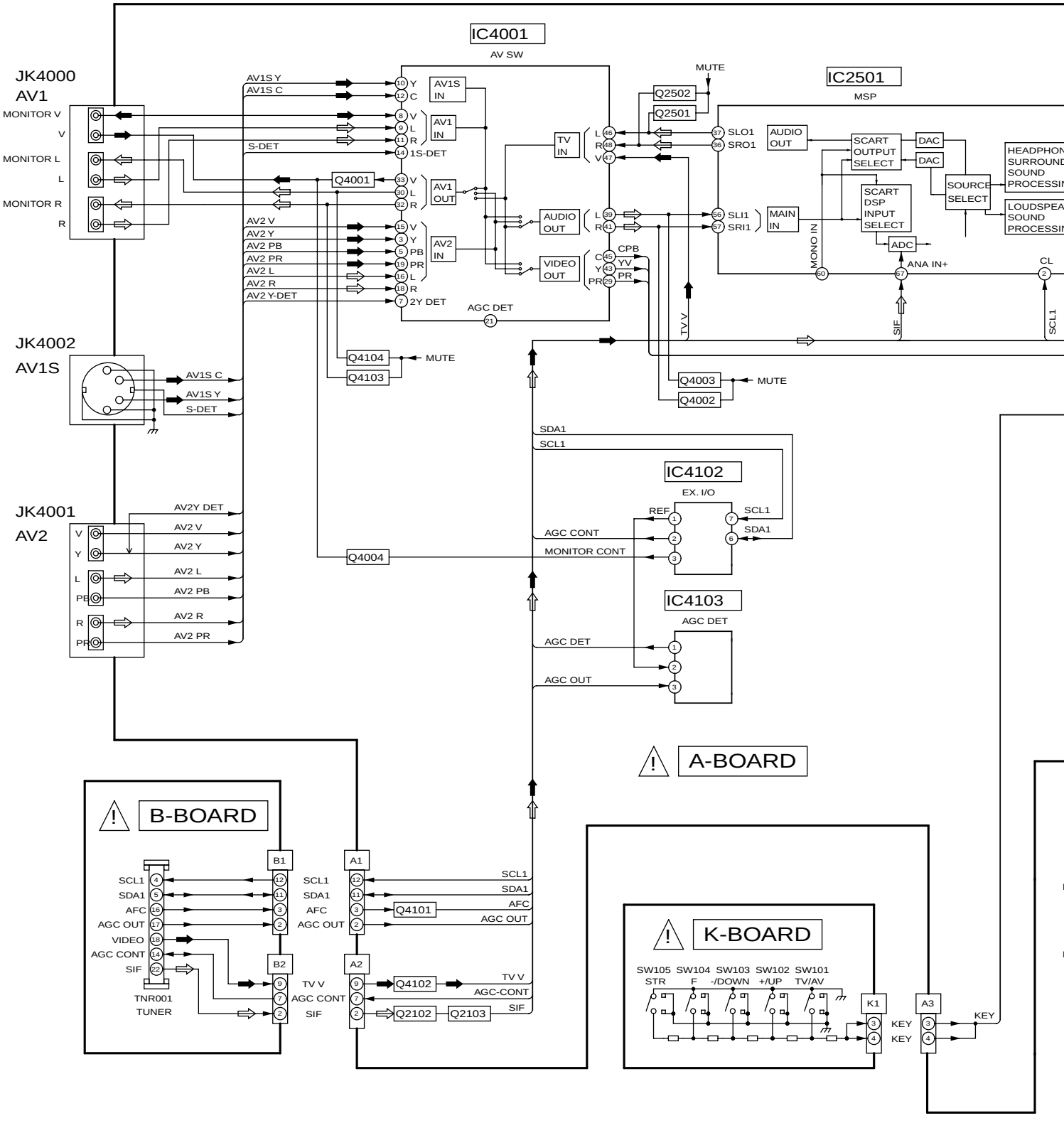


TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram

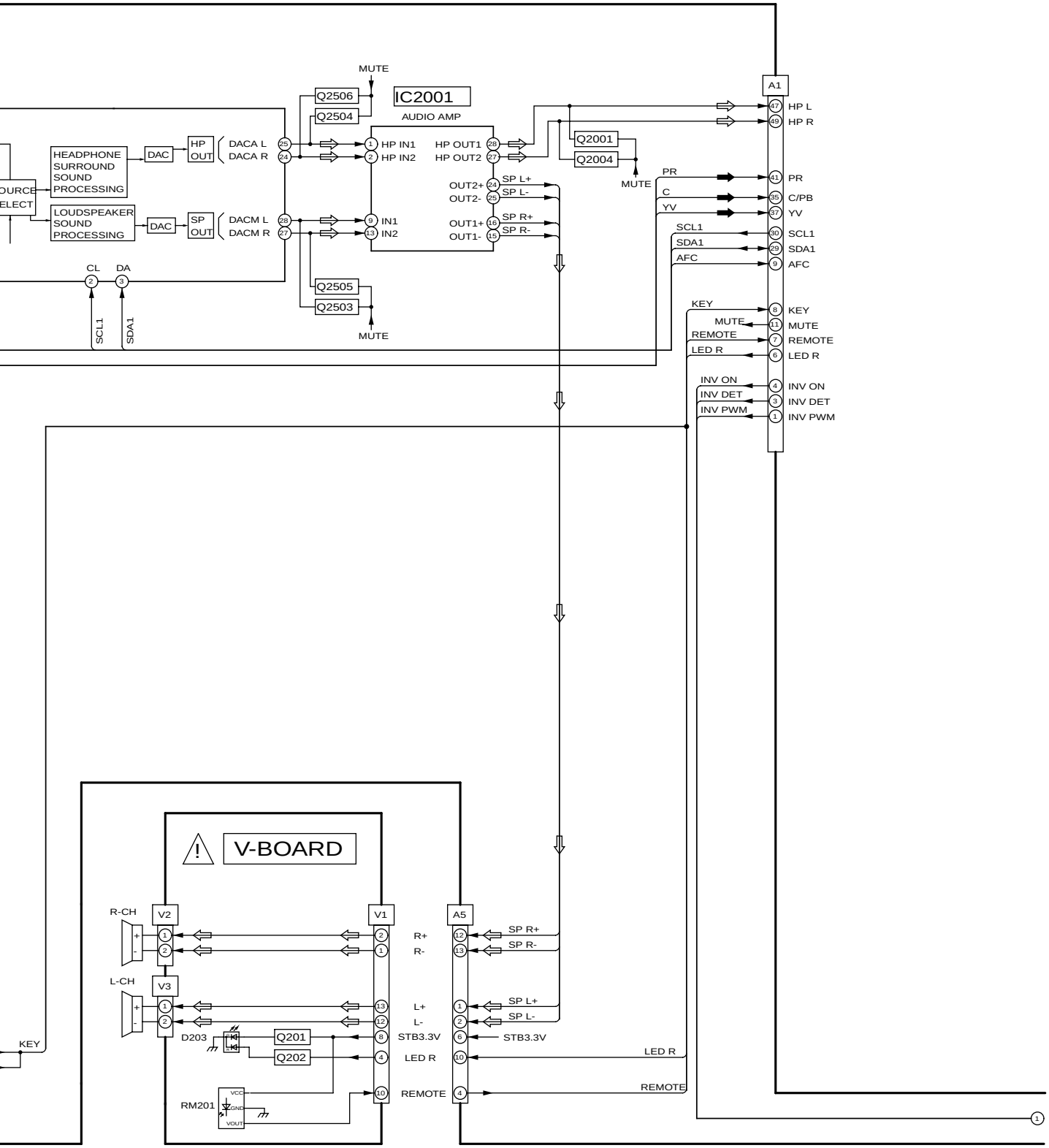


TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram

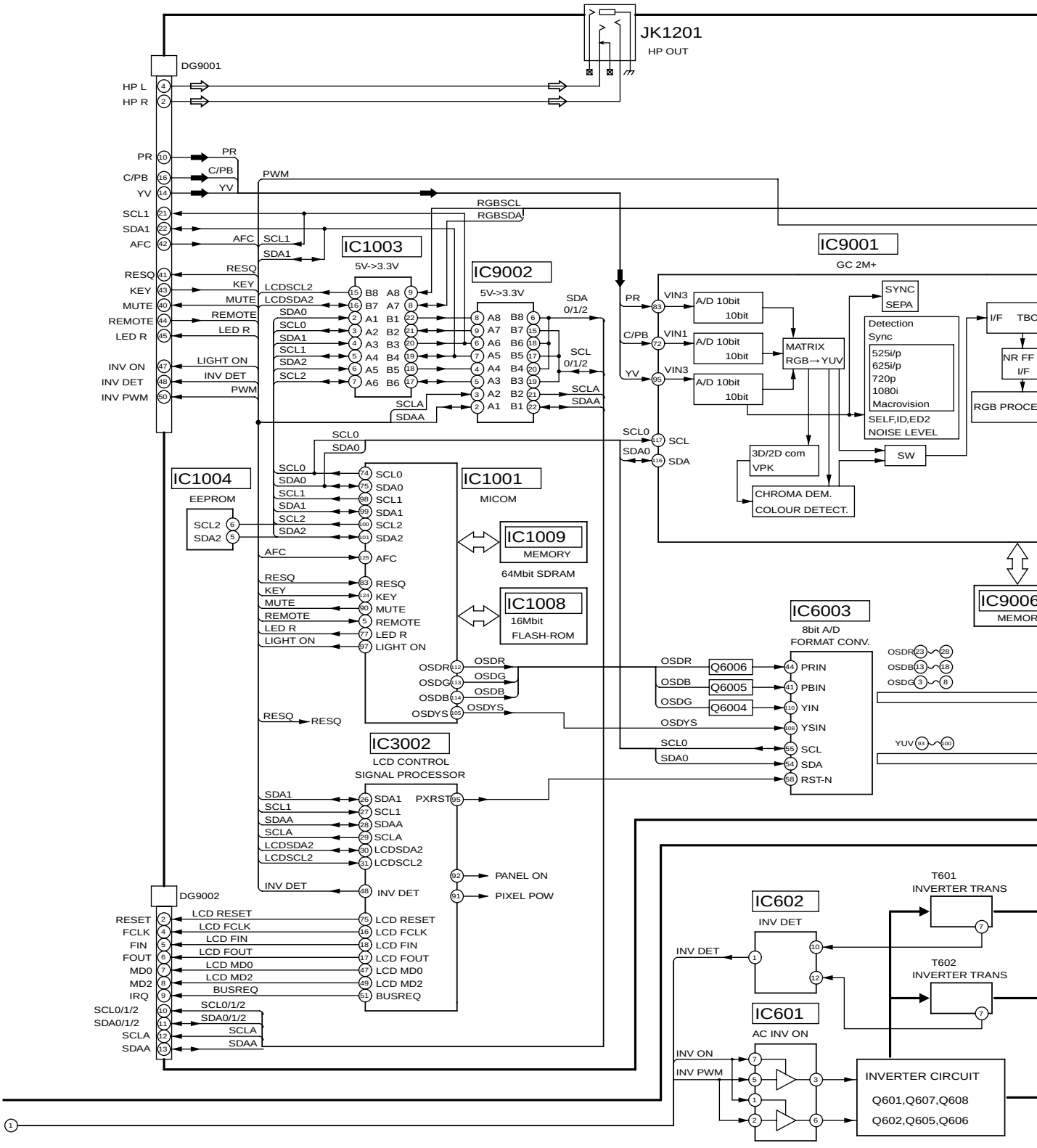
11.3. Signal Block Diagram



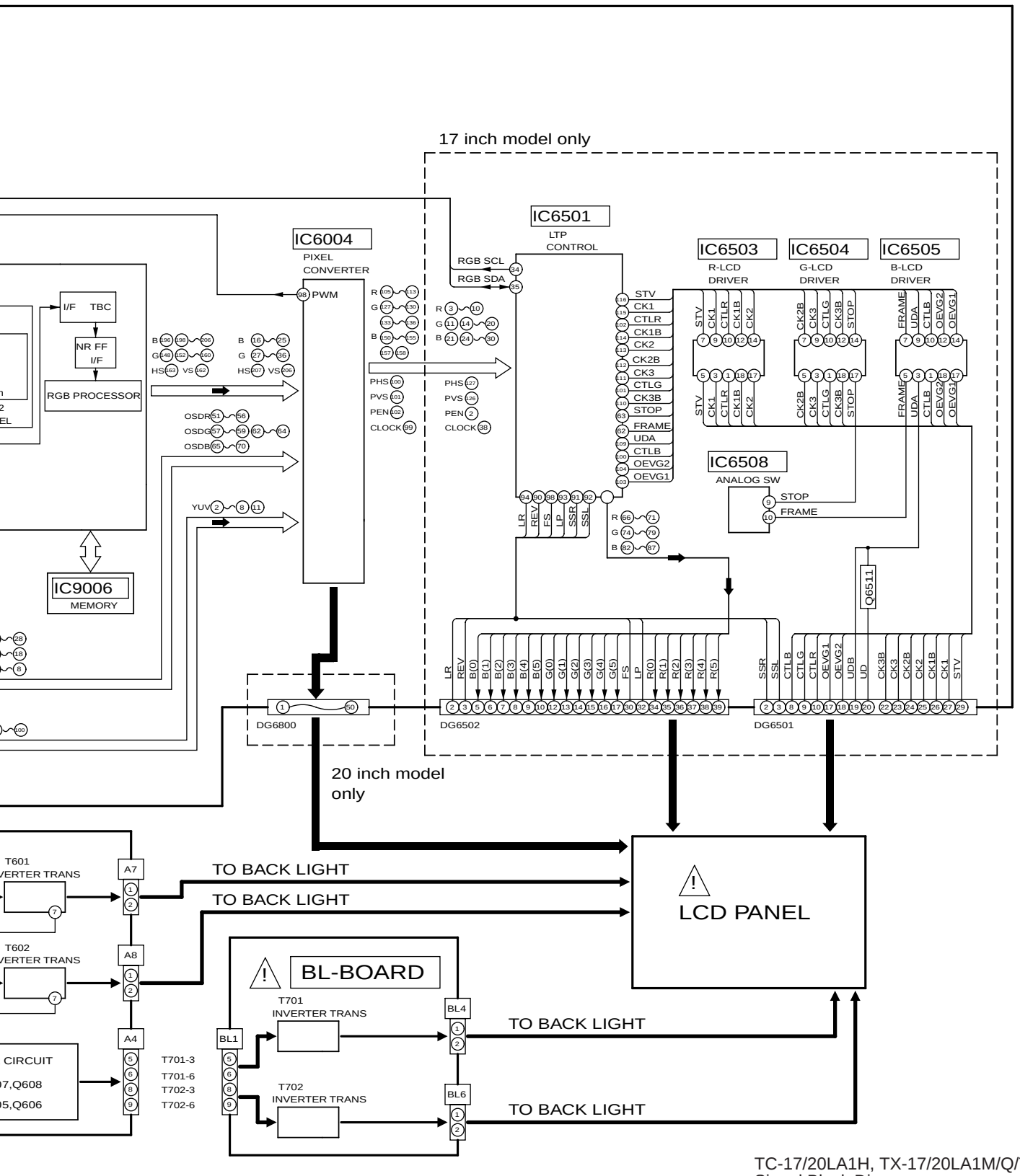
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram

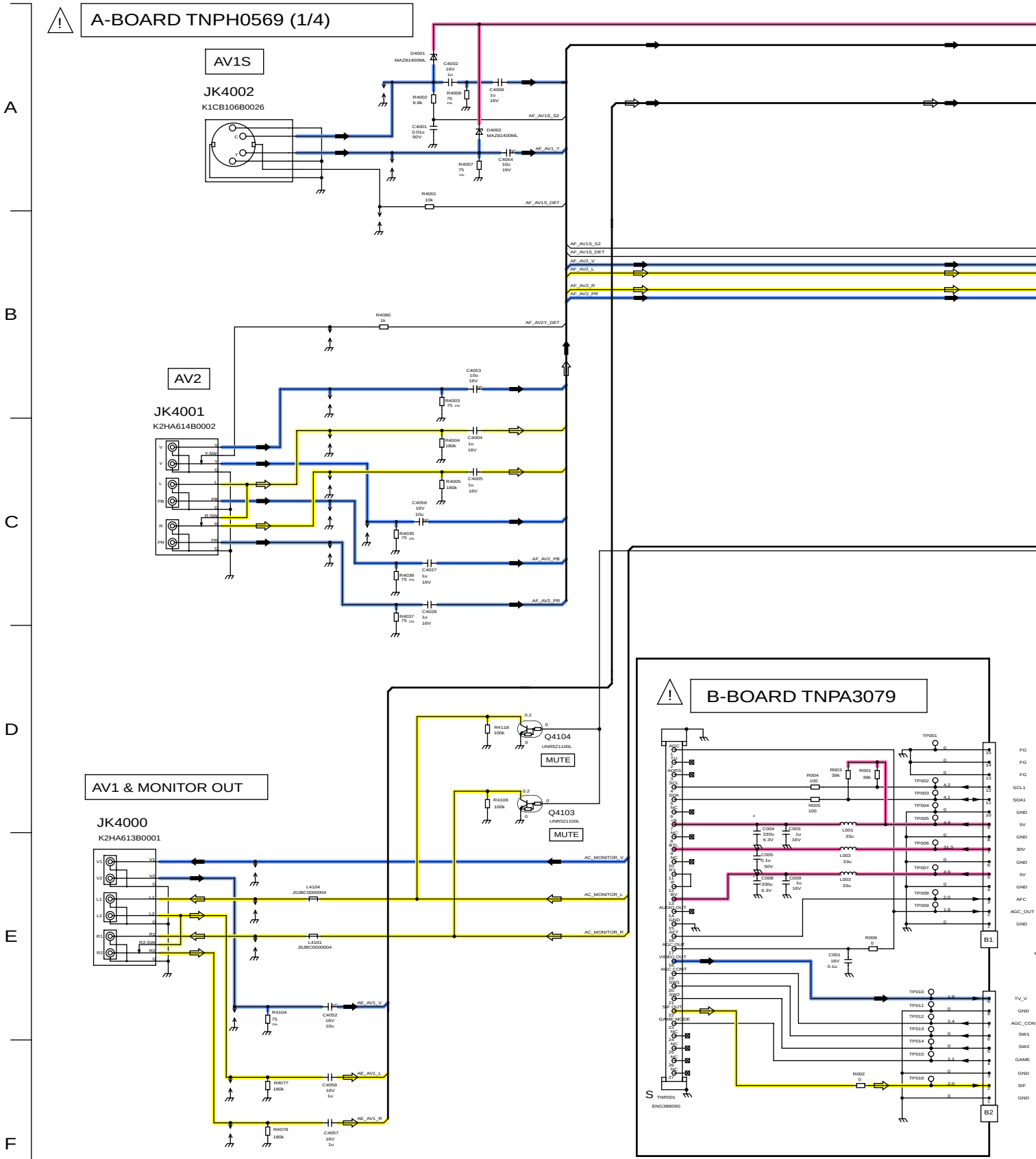


TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram

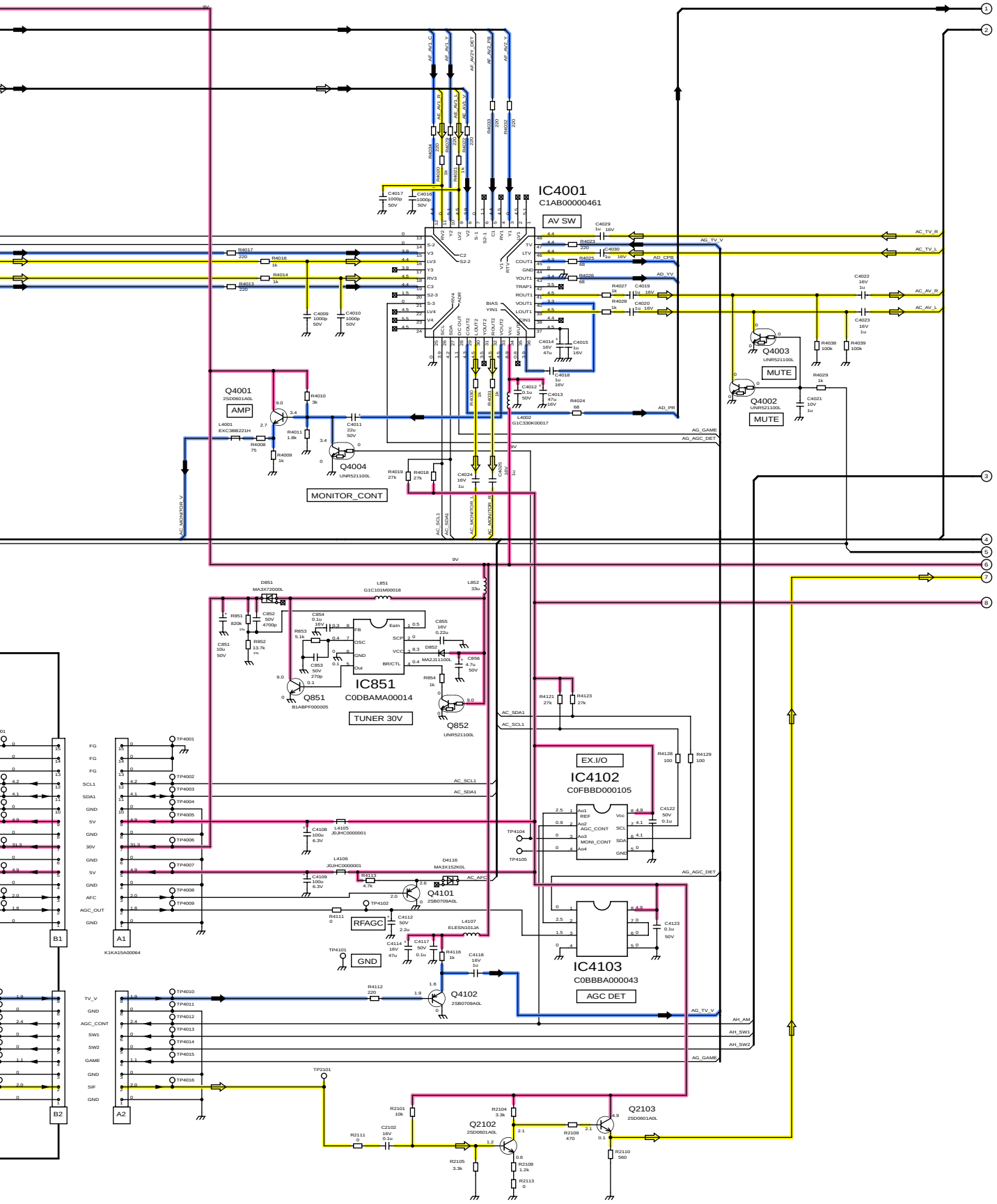


TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram

11.4. A-Board (1 of 4) and B-Board Schematic Diagram



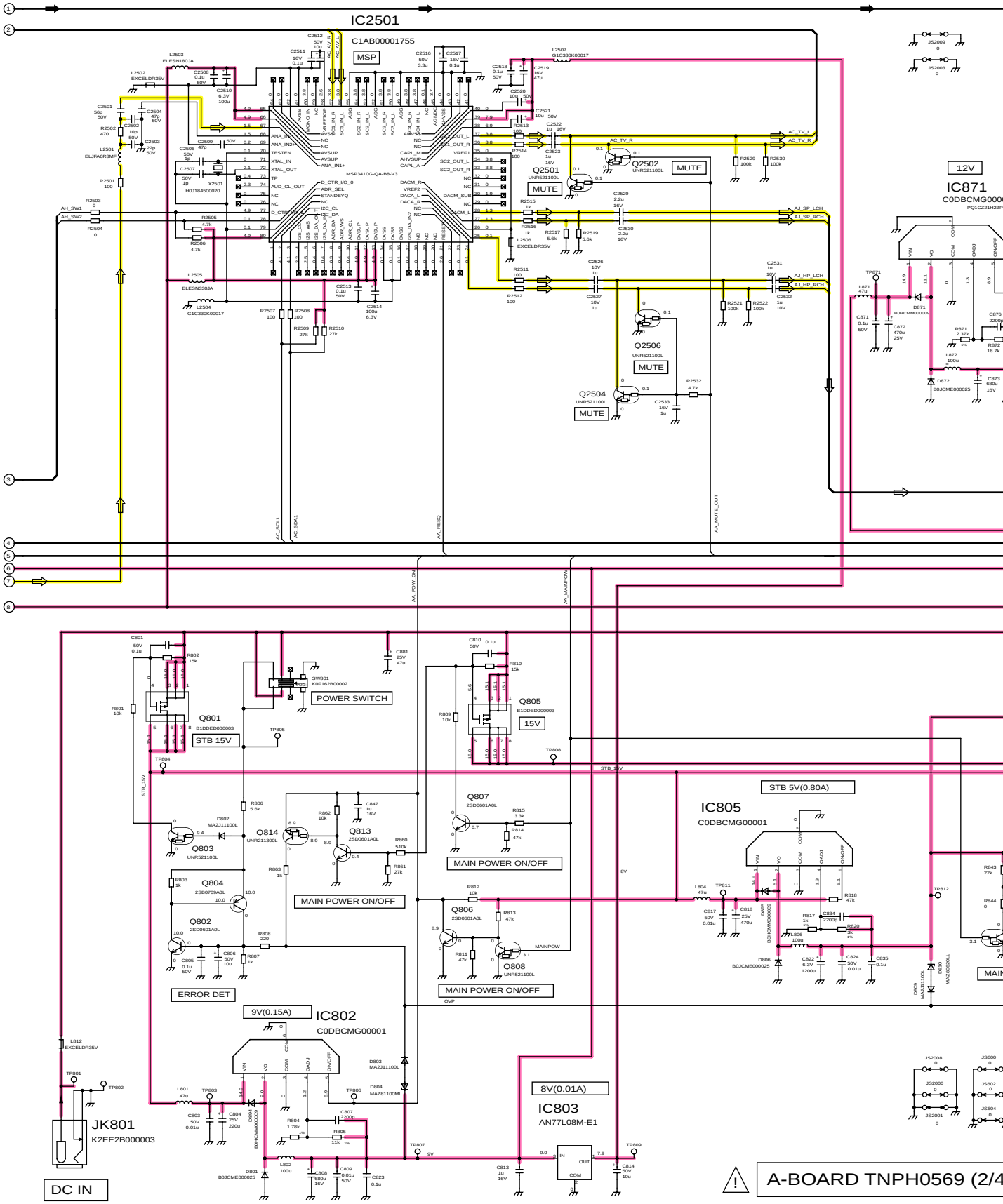
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (1 of 4) Schematic Diagram



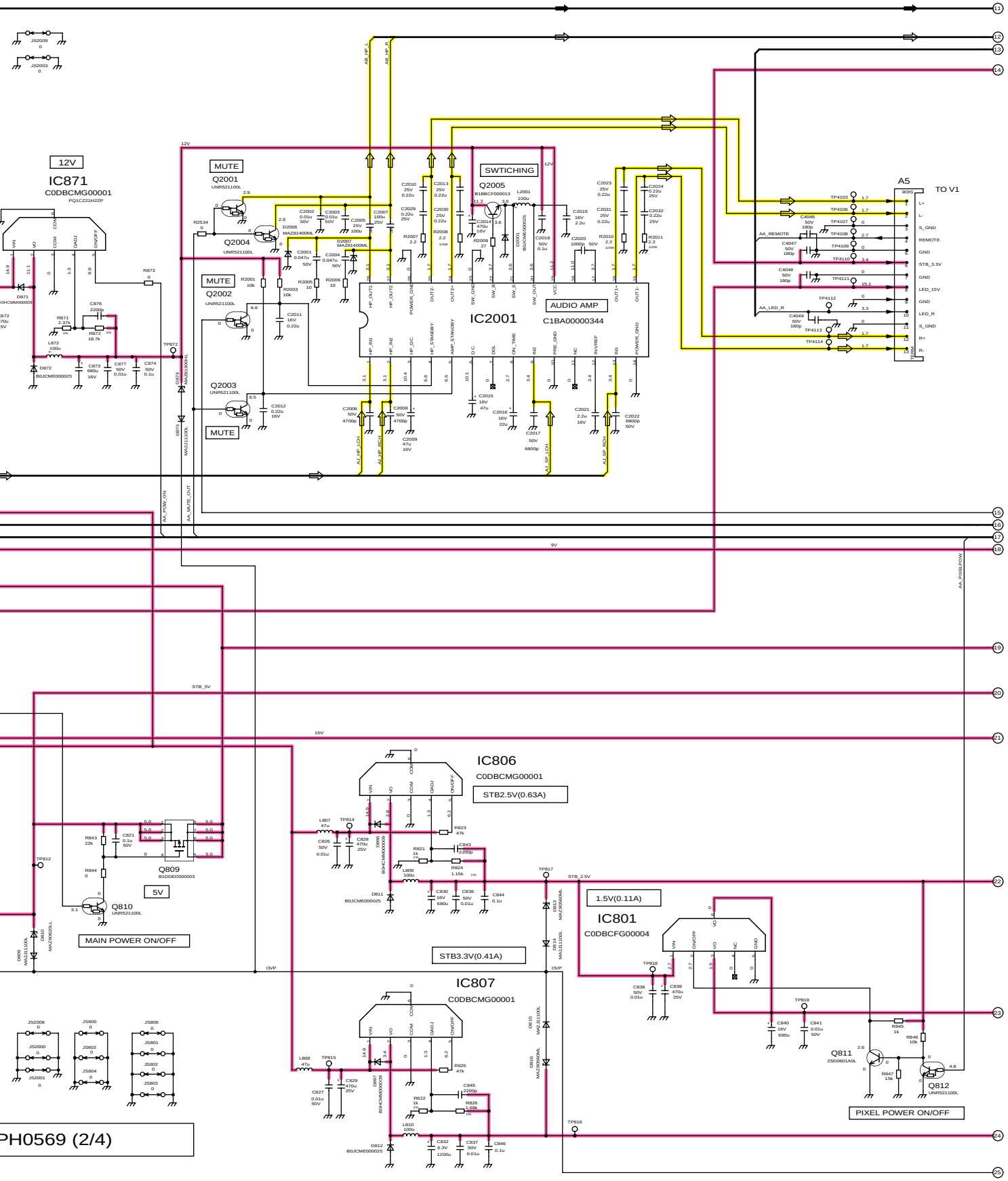
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (1 of 4) Schematic Diagram

5 6 7 8 9

11.5. A-Board (2 of 4) Schematic Diagram



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (2 of 4) Schematic Diagram

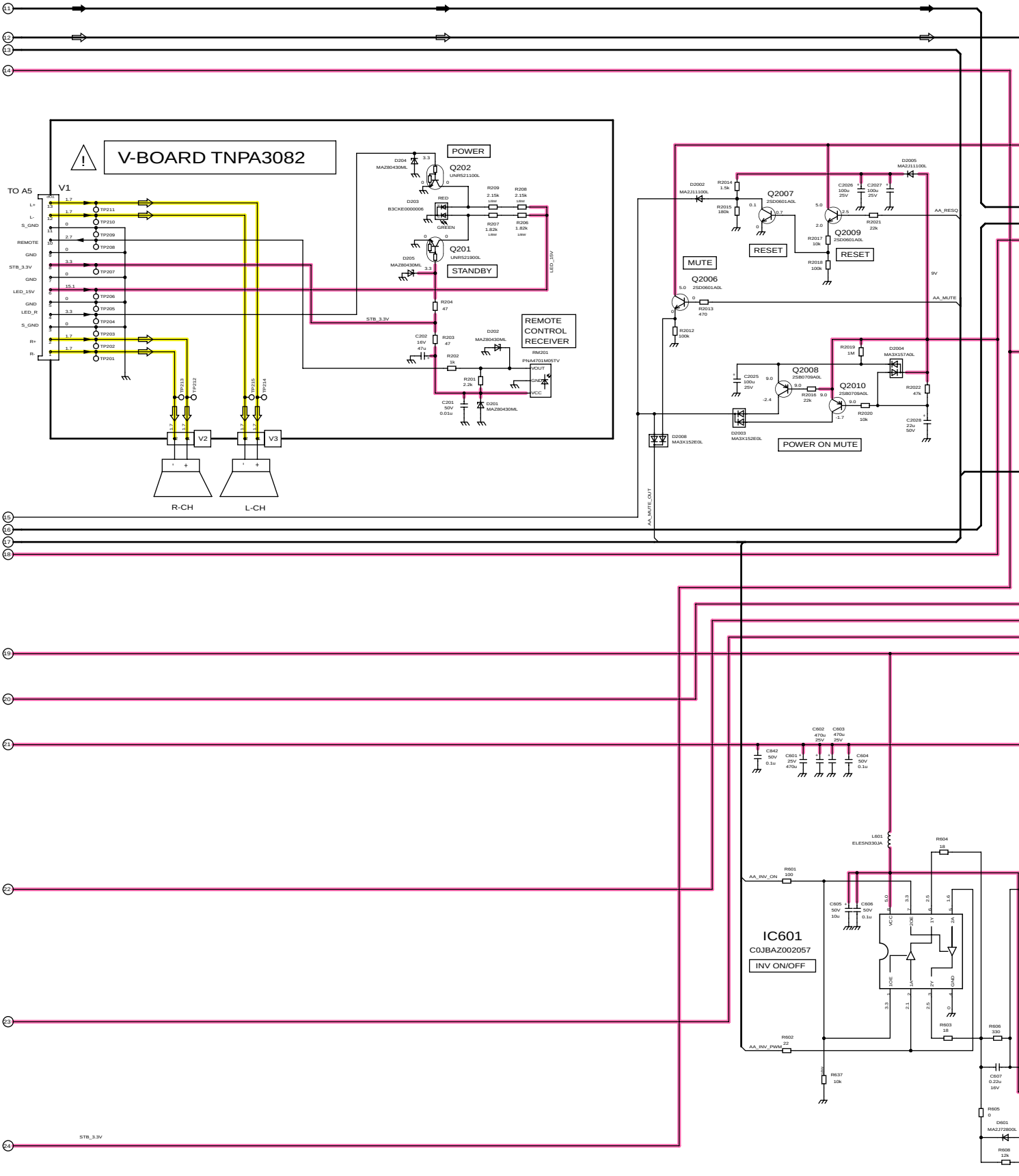


PH0569 (2/4)

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (2 of 4) Schematic Diagram

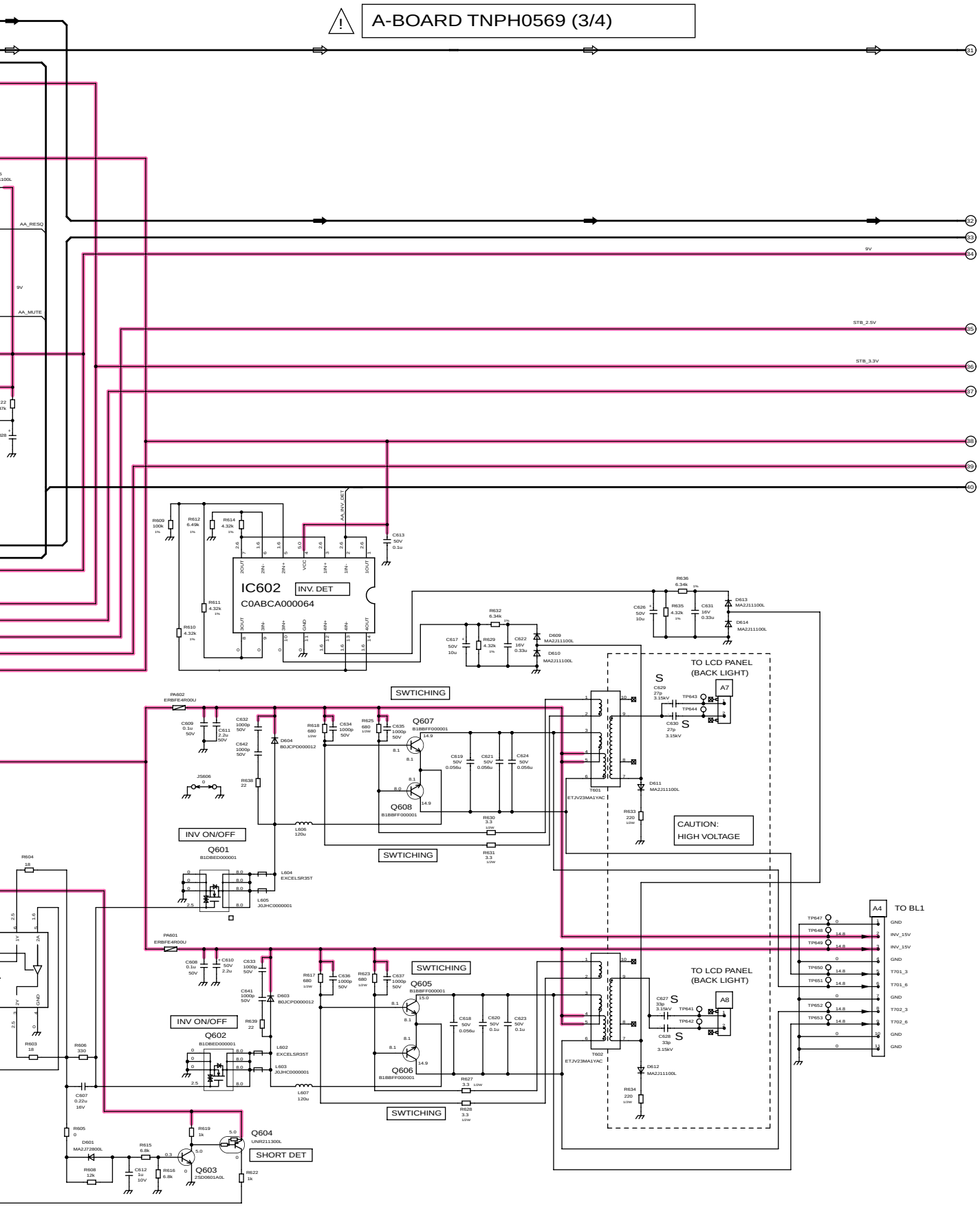
14 15 16 17 18

11.6. A-Board (3 of 4) and V-Board Schematic Diagram



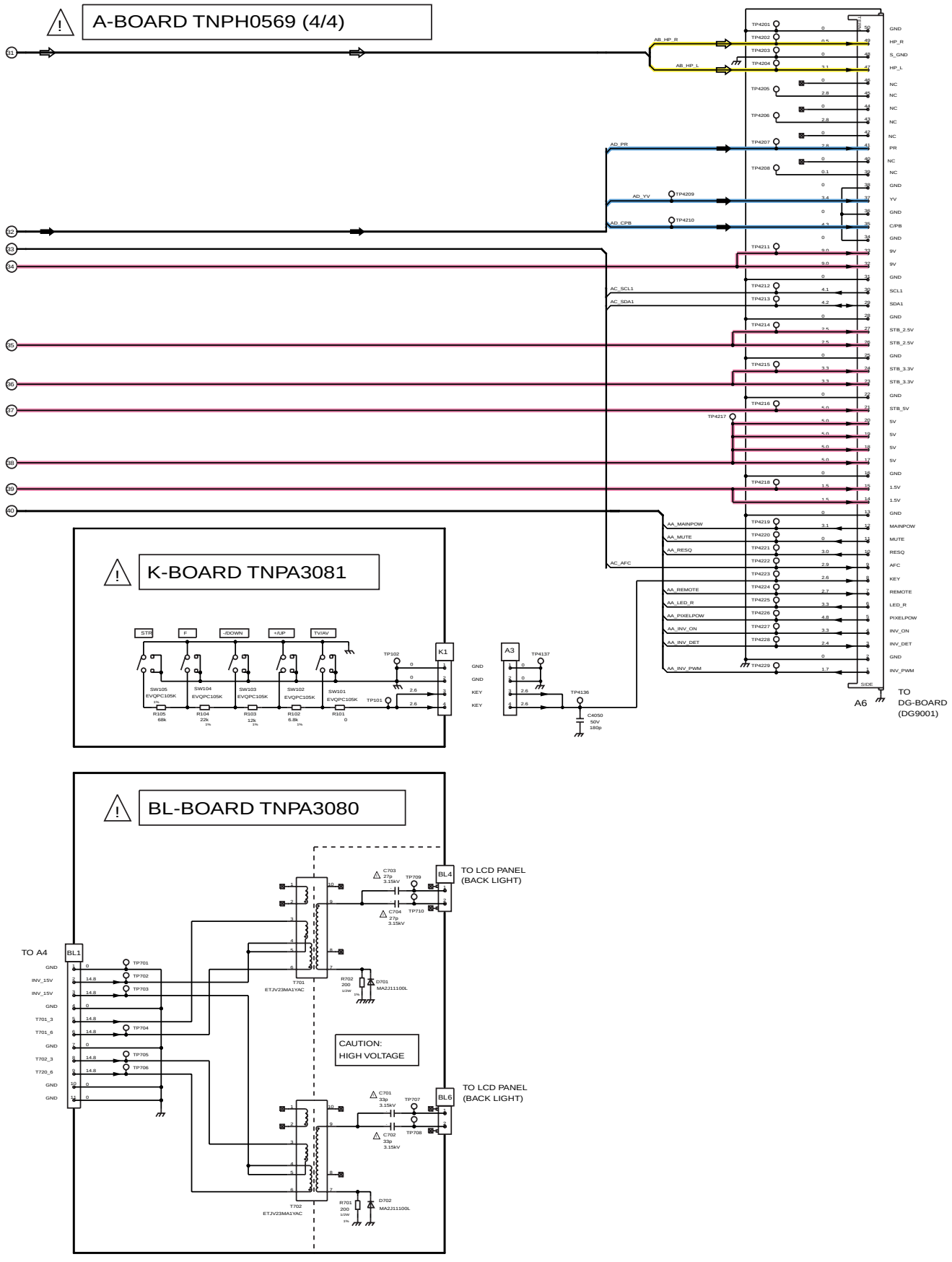
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram

19 | 20 | 21 | 22 | 23



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram

11.7. A-Board (4 of 4) Schematic Diagram, BL-Board, and K-Board Schematic Dia



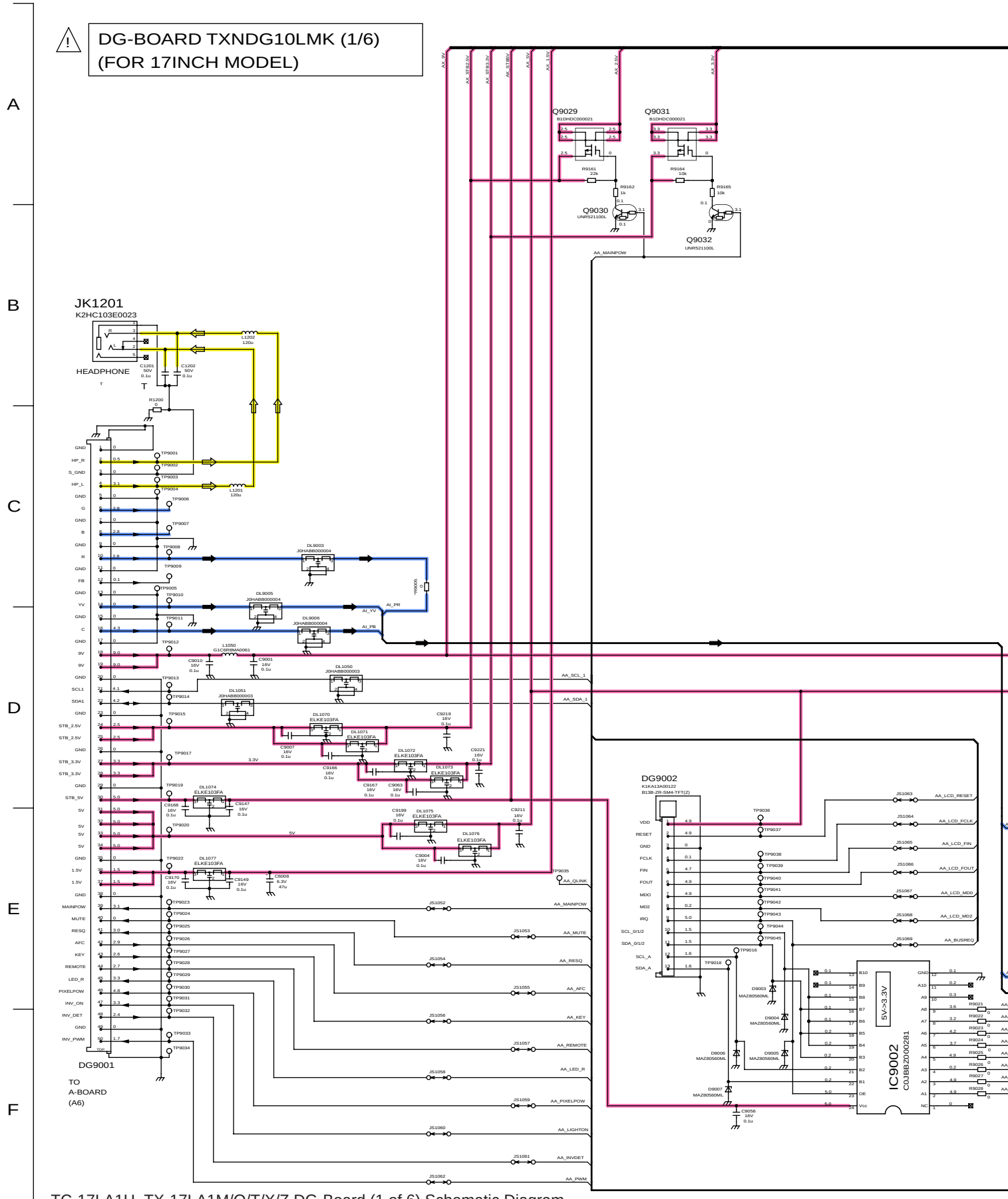
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram

OARD
001)

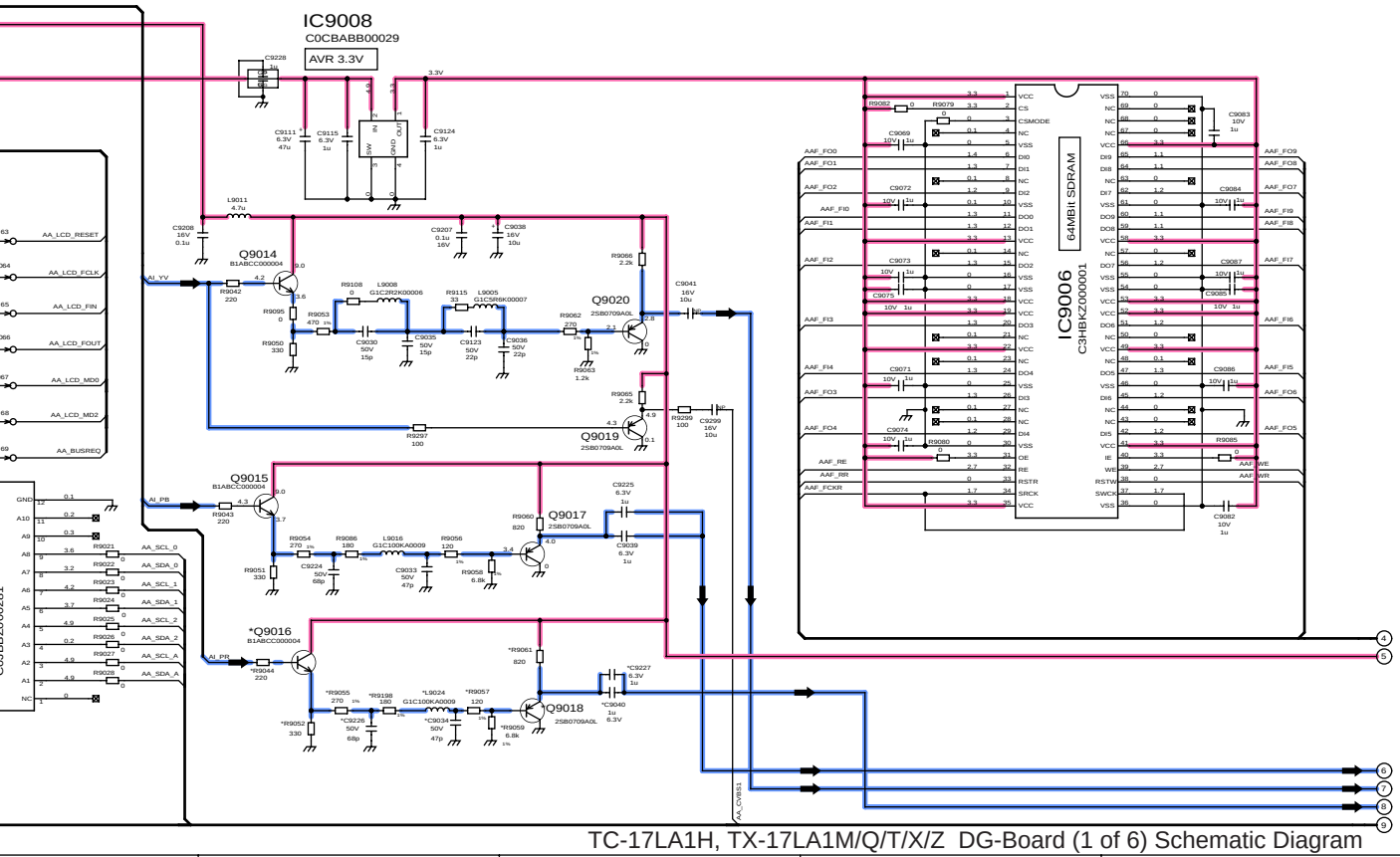
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram

32 33 34 35 36

11.8. DG-Board (1 of 6) Schematic Diagram (For 17inch model)



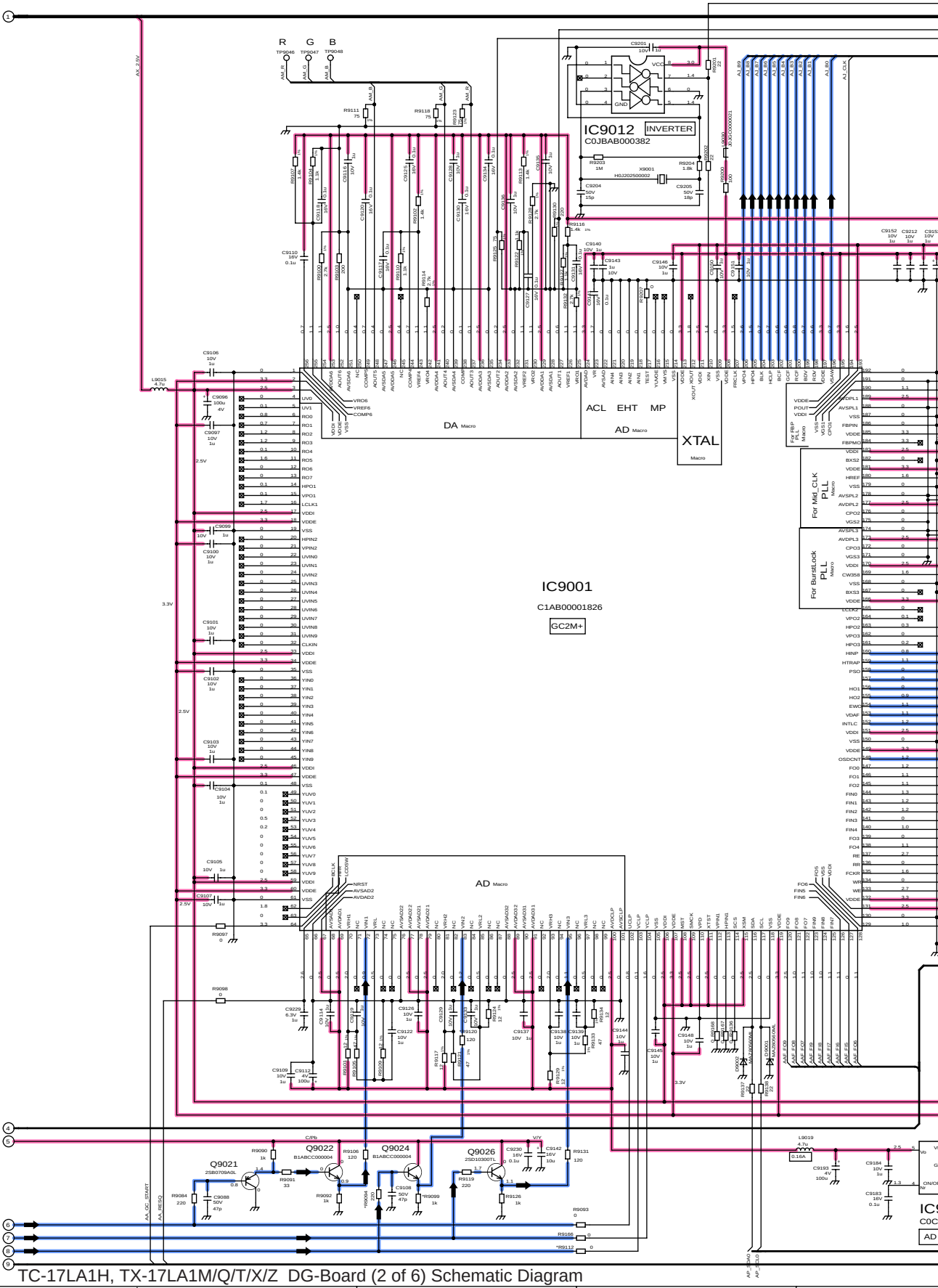
TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (1 of 6) Schematic Diagram



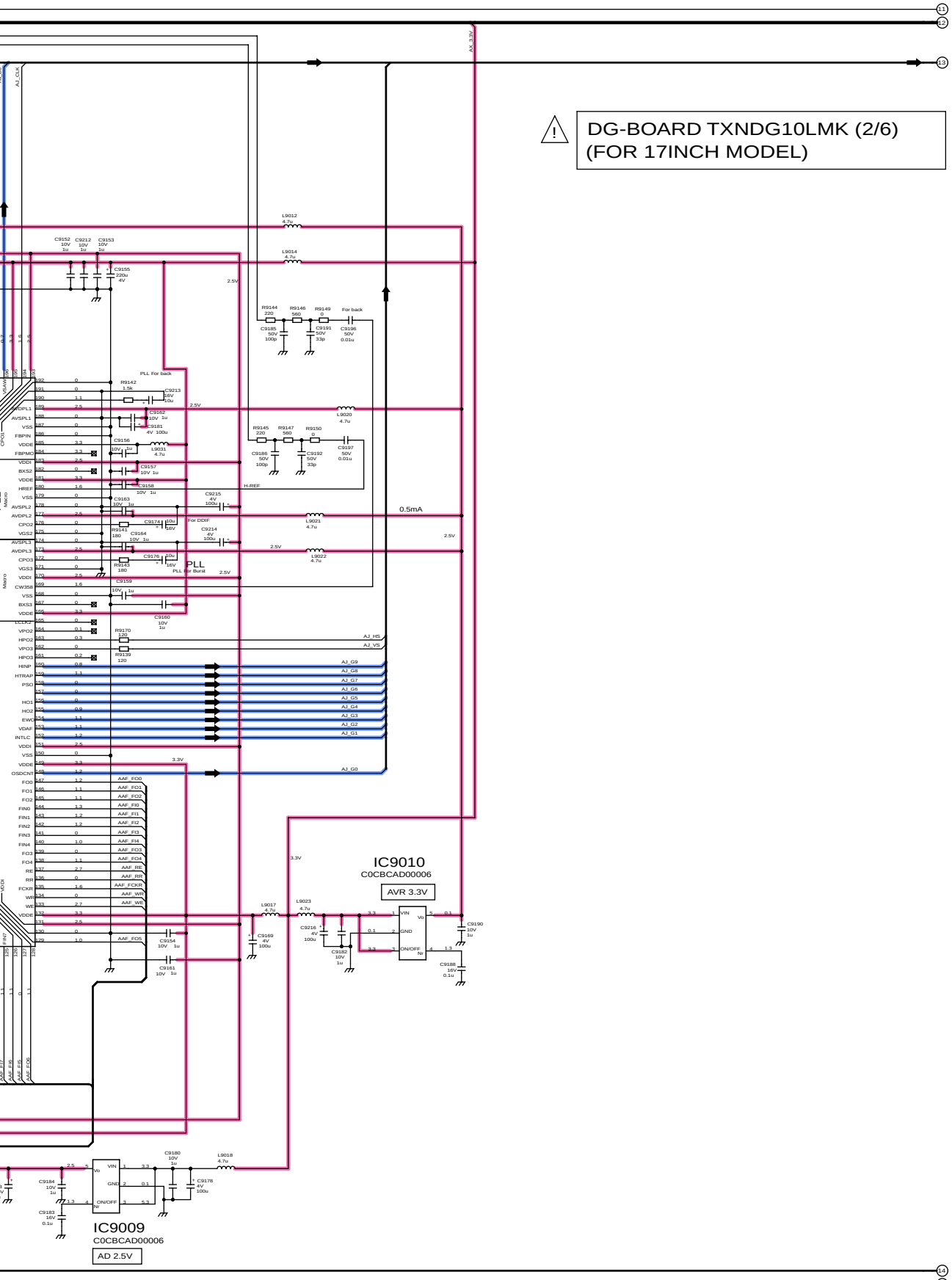
TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (1 of 6) Schematic Diagram

5 6 7 8 9

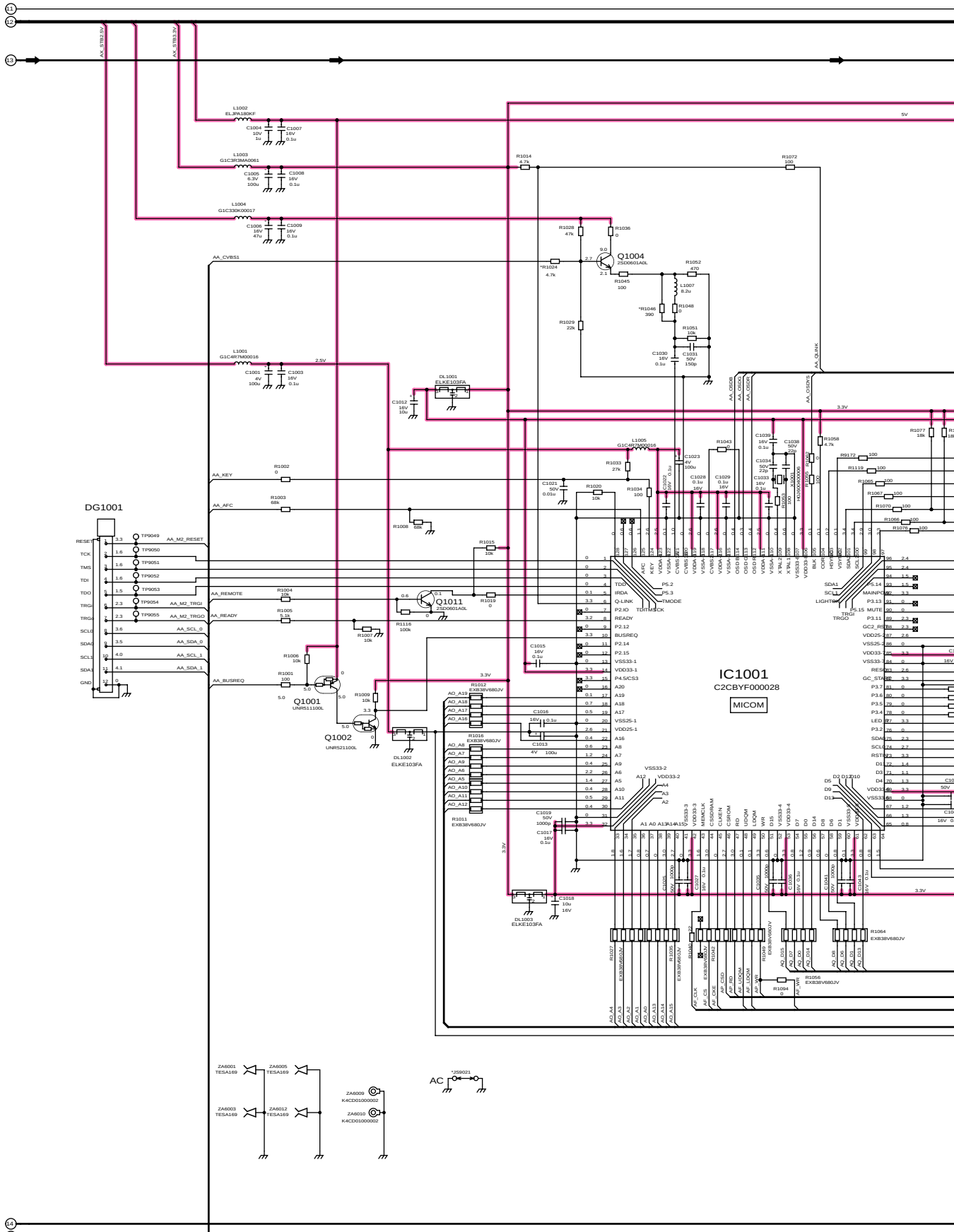
11.9. DG-Board (2 of 6) Schematic Diagram (For 17inch model)

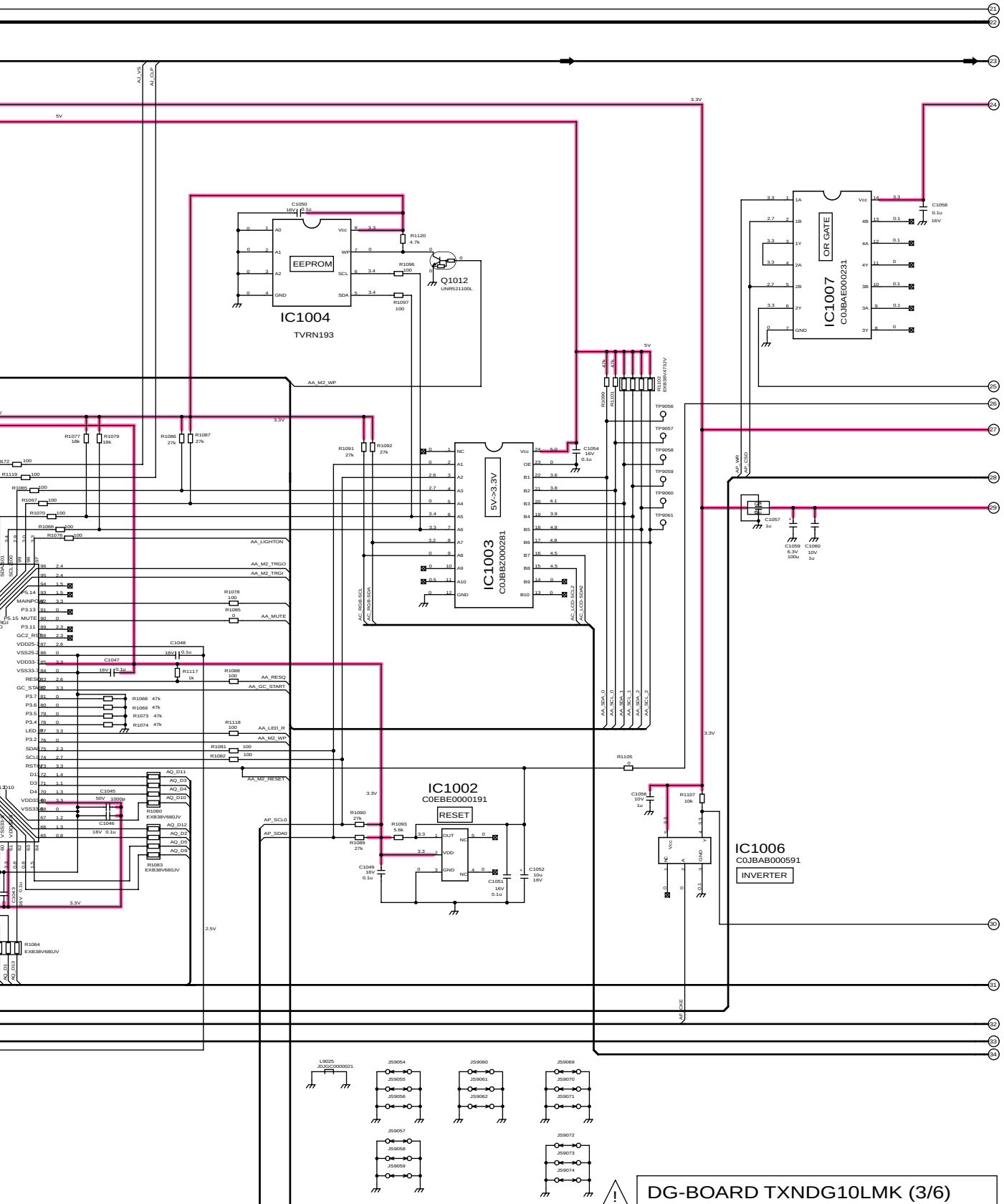


TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (2 of 6) Schematic Diagram


DG-BOARD TXNDG10LMK (2/6)
(FOR 17INCH MODEL)
IC9010
C0CBCAD00006
AVR 3.3V
IC9009
C0CBCAD00006
AD 2.5V
PLL
PLL For Burst
PLL For back
For back
For DDIF
H-REF
0.5mA
2.5V
3.3V
AJ_HS
AJ_VS
AJ_G9
AJ_G8
AJ_G7
AJ_G6
AJ_G5
AJ_G4
AJ_G3
AJ_G2
AJ_G1
AJ_G0

11.10. DG-Board (3 of 6) Schematic Diagram (For 17inch model)



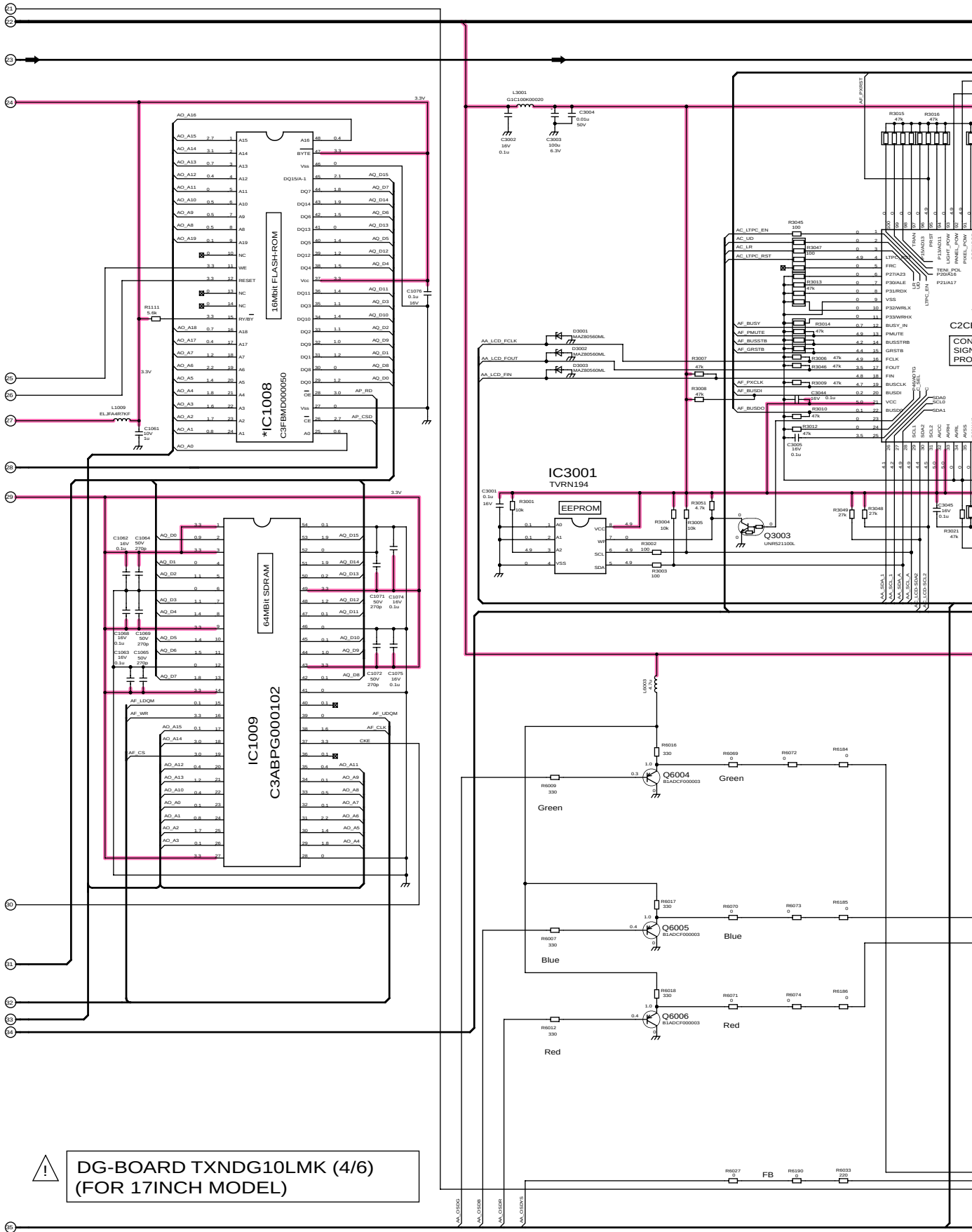


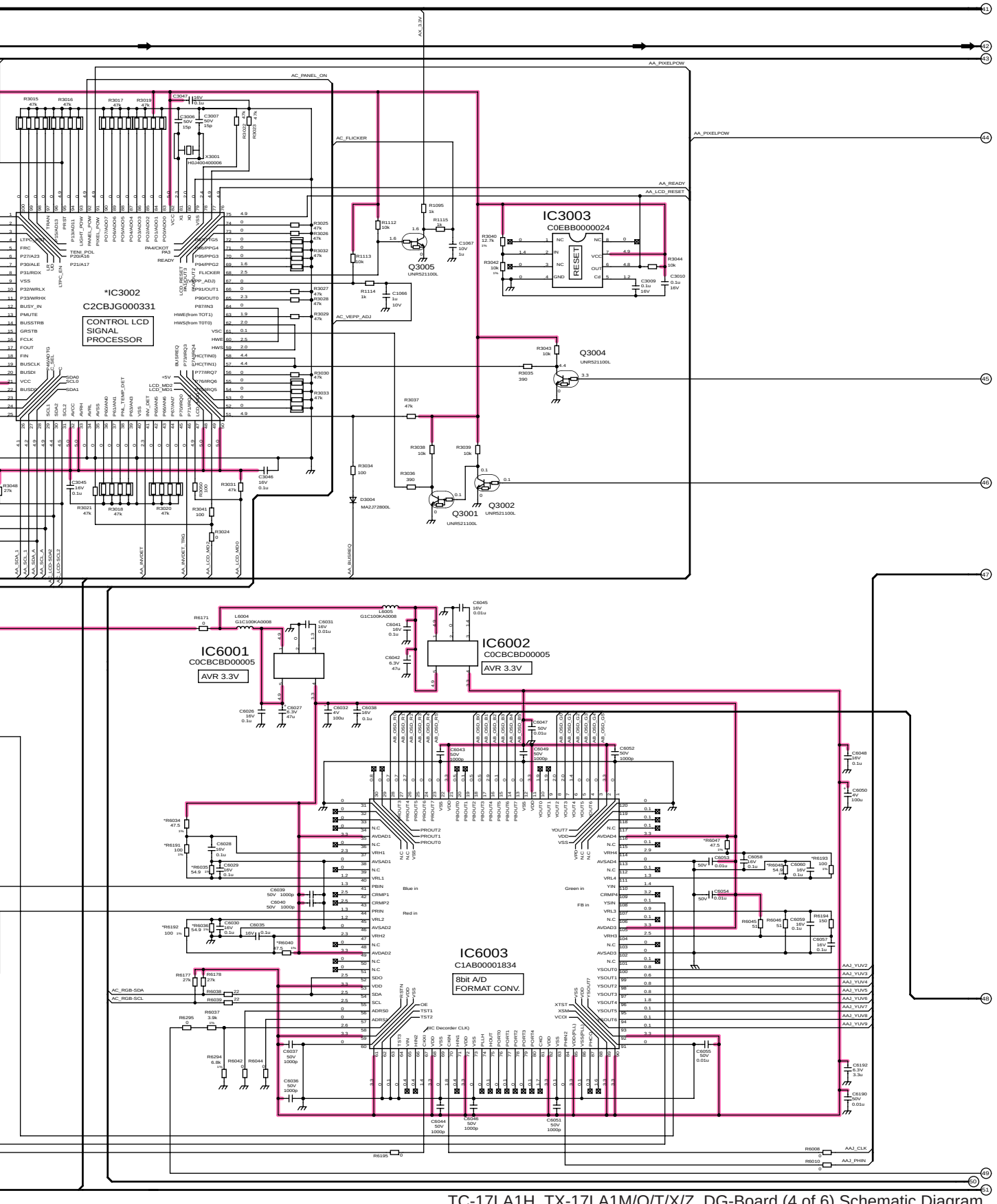
DG-BOARD TXNDG10LMK (3/6)
(FOR 17INCH MODEL)

TC-17LA1H, TX17LAM/Q/T/X/Z DG-Board (3 of 6) Schematic Diagram

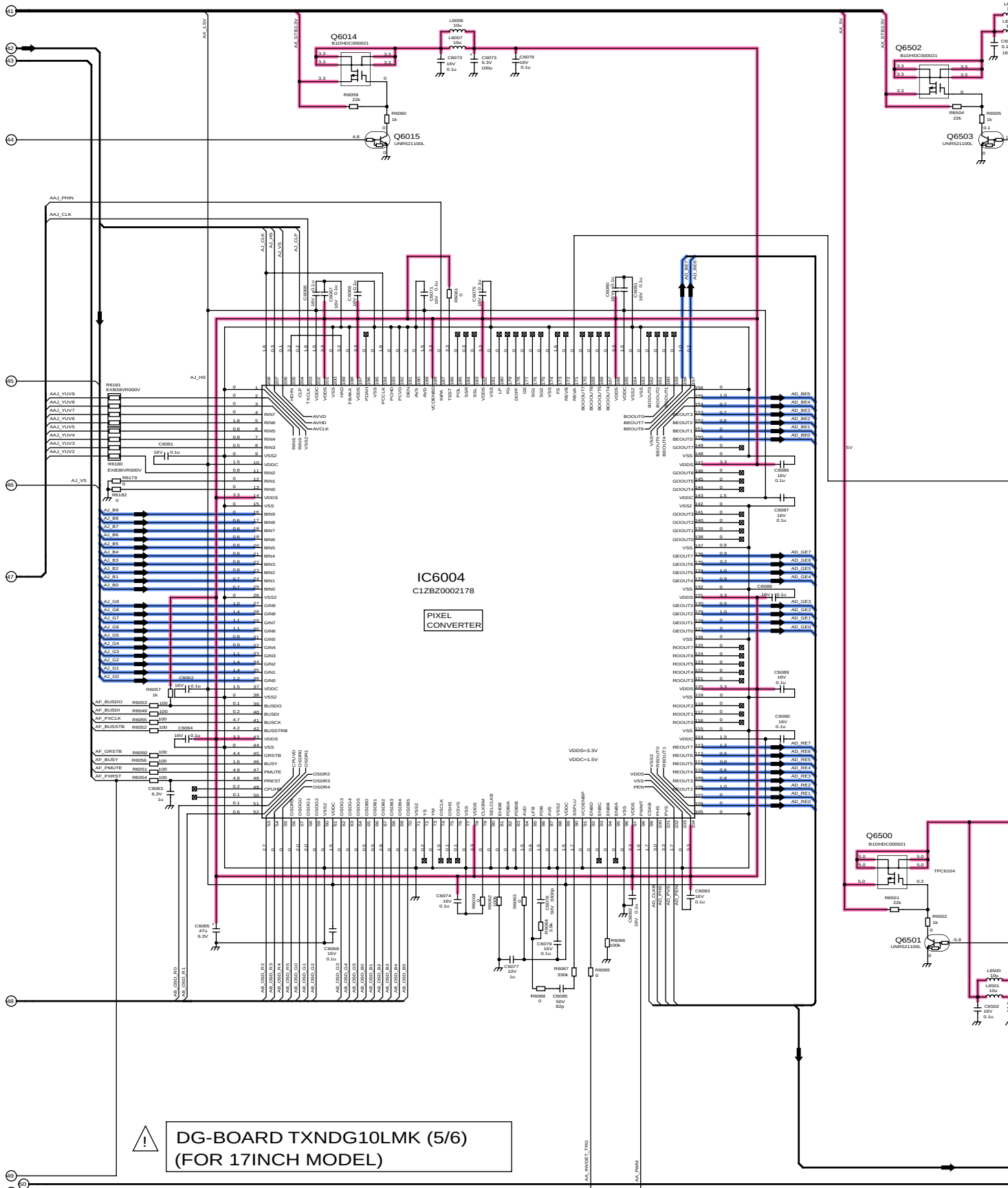
23 24 25 26 27

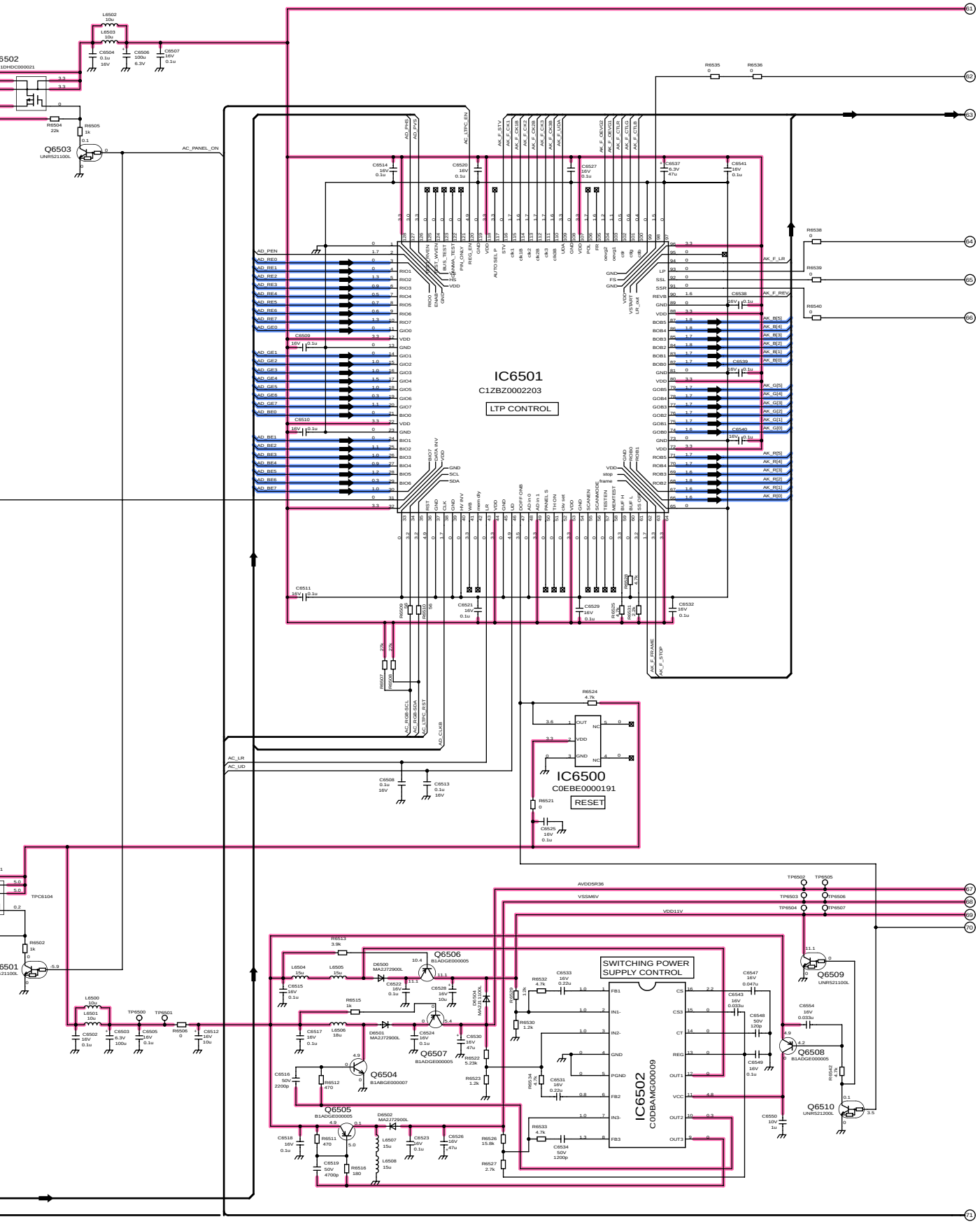
11.11. DG-Board (4 of 6) Schematic Diagram (For 17inch model)




IC3003
C0EBB0000024
RESET
Q3005
UNR521100L
Q3004
UNR521100L
Q3001
UNR521100L
Q3002
UNR521100L
*IC3002
C2CBJG000331
CONTROL LCD
SIGNAL
PROCESSOR
IC6001
C0CBCBD00005
AVR 3.3V
IC6002
C0CBCBD00005
AVR 3.3V
IC6003
C1AB00001834
8bit A/D
FORMAT CONV.
AC_PANEL_ON
AC_FLICKER
AC_VEPP_ADJ
AA_PIXELPOW
AA_READY
AA_LCD_RESET
AA_BUSREQ
AA_BAYSET_TRIG
AA_LCD_MOSI
AA_LCD_MISO
AA_BAYSET
AA_SDA_1
AA_SCL_1
AA_SDA_A
AA_SCL_A
AC_LCD_SDA2
AC_LCD_SCL2
AC_RGB-SDA
AC_RGB-SCL
AAJ_YUV2
AAJ_YUV3
AAJ_YUV4
AAJ_YUV5
AAJ_YUV6
AAJ_YUV7
AAJ_YUV8
AAJ_CLK
AAJ_PHIN

11.12. DG-Board (5 of 6) Schematic Diagram (For 17inch model)

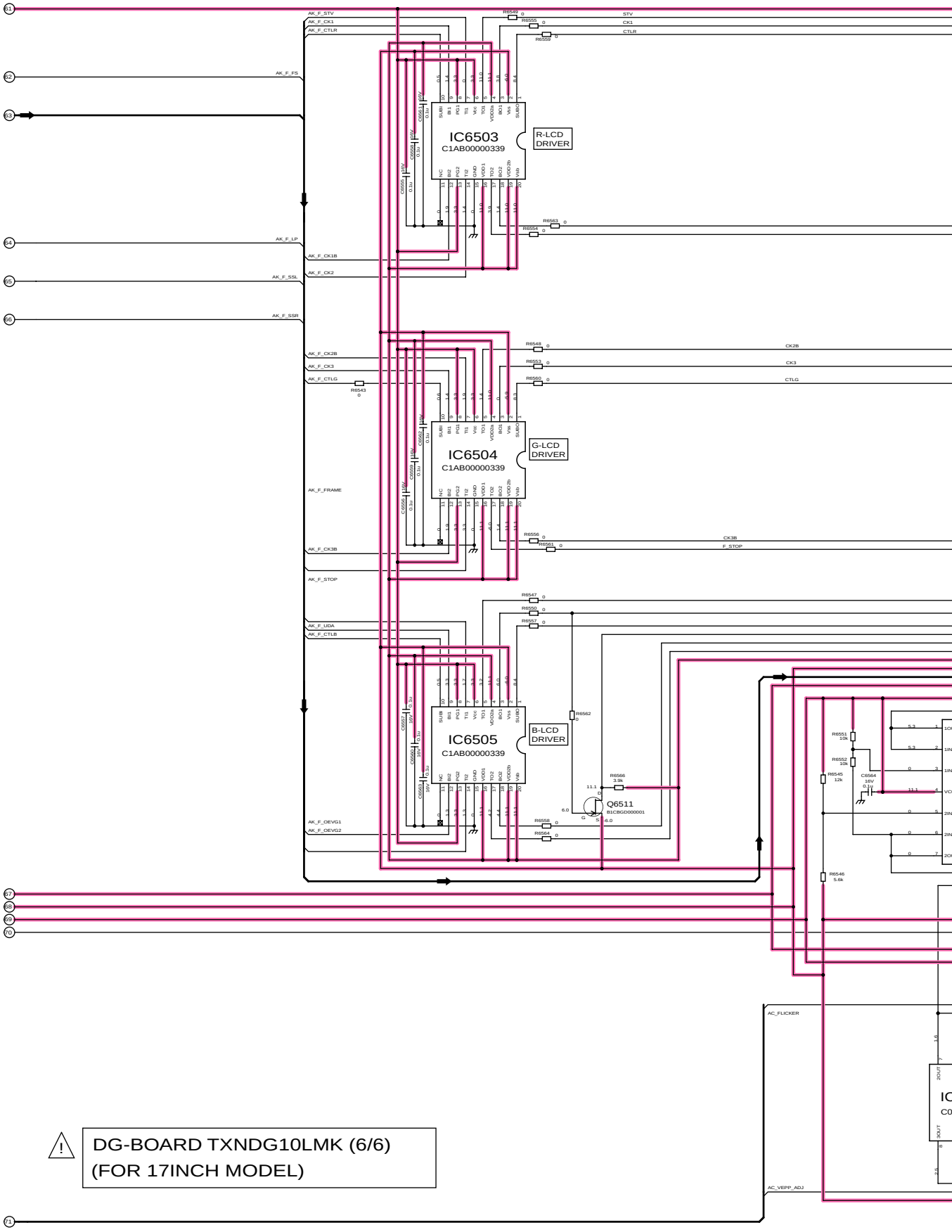




TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (5 of 6) Schematic Diagram

41 42 43 44 45

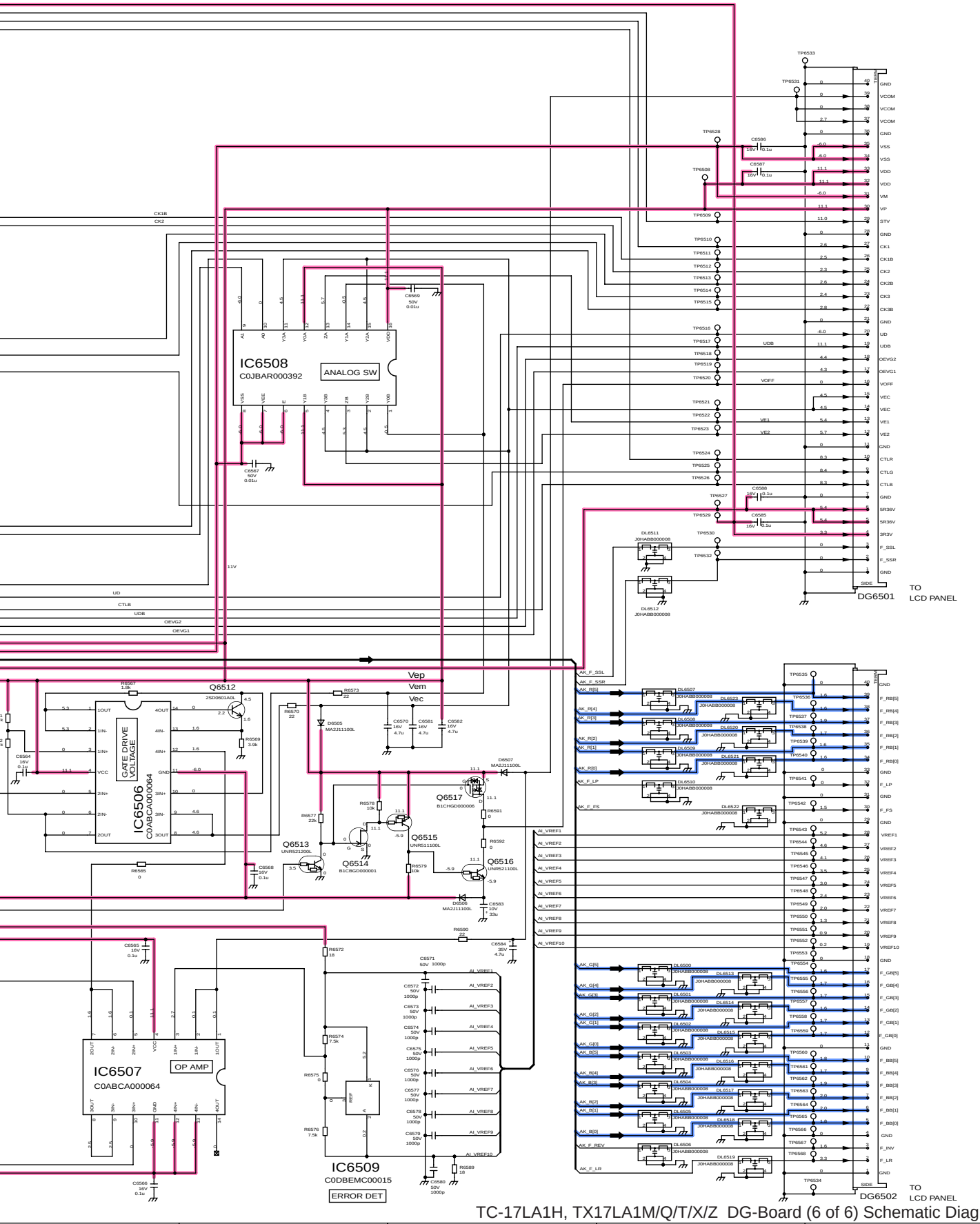
11.13. DG-Board (6 of 6) Schematic Diagram (For 17inch model)



DG-BOARD TXNDG10LMK (6/6)
(FOR 17INCH MODEL)

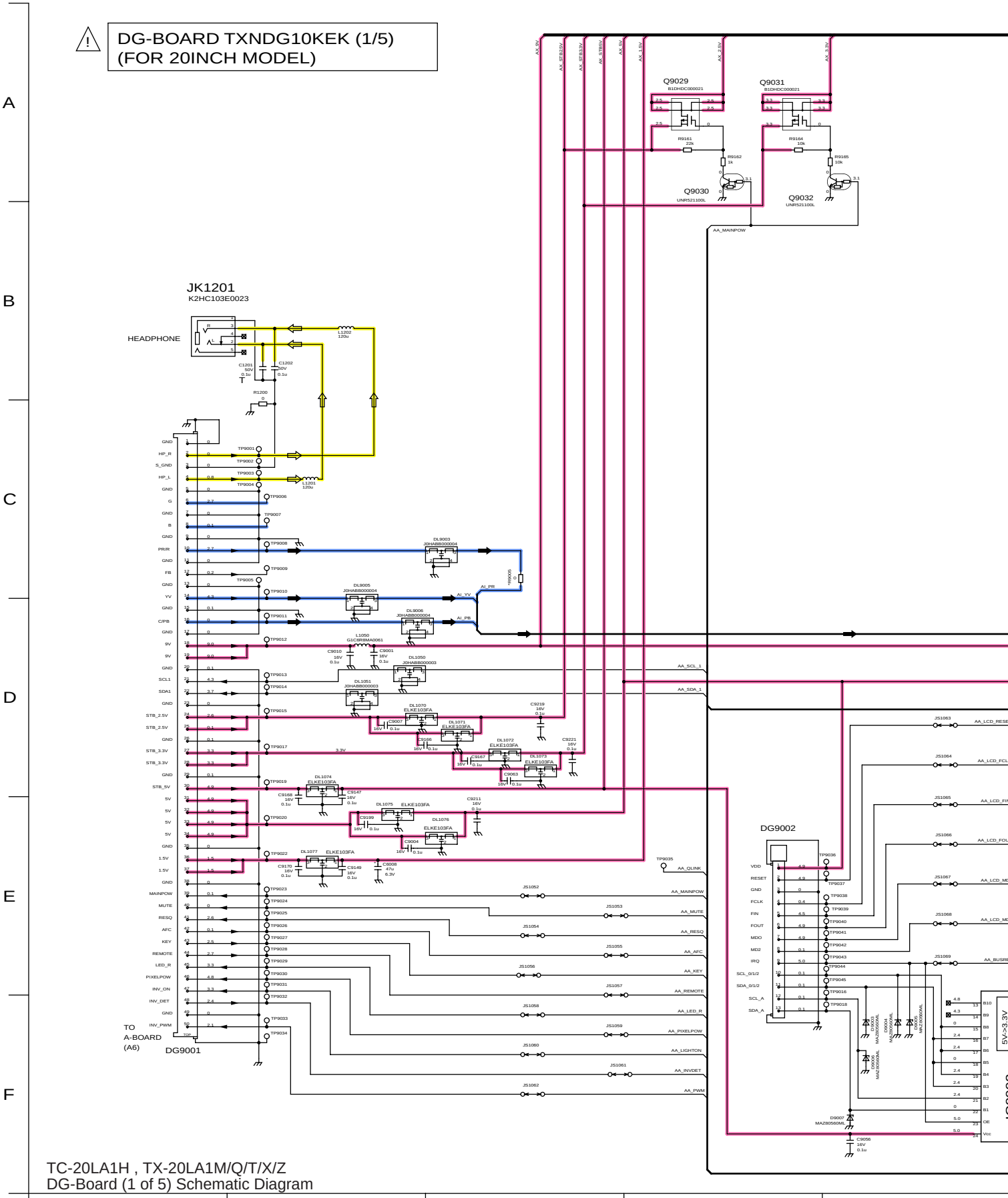
TC-17LA1H, TX17LA1M/Q/T/X/Z DG-Board (6 of 6) Schematic Diagram

46 47 48 49 50

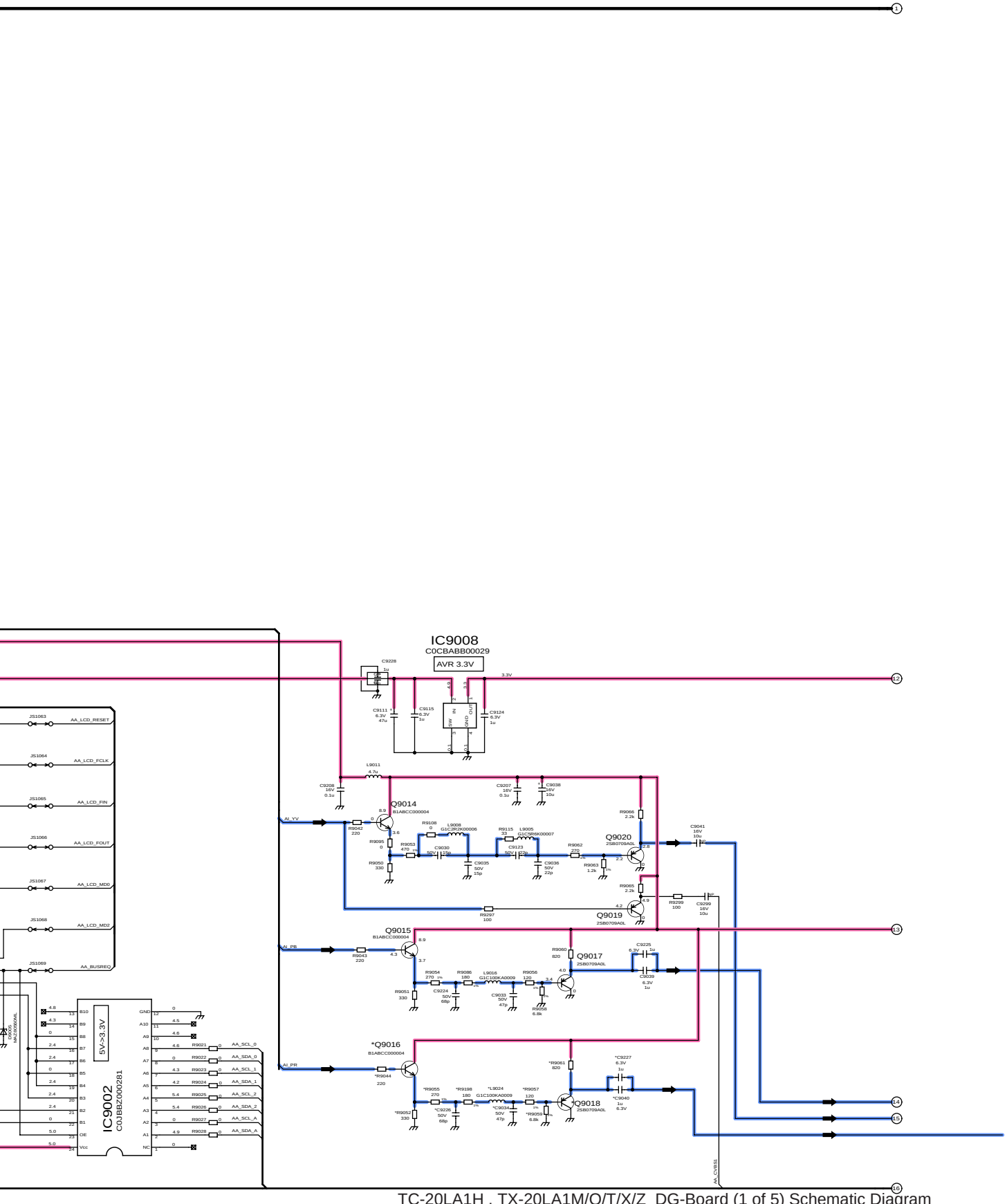


TC-17LA1H, TX17LA1M/Q/T/X/Z DG-Board (6 of 6) Schematic Diagram

11.14. DG-Board (1 of 5) Schematic Diagram (For 20inch model)



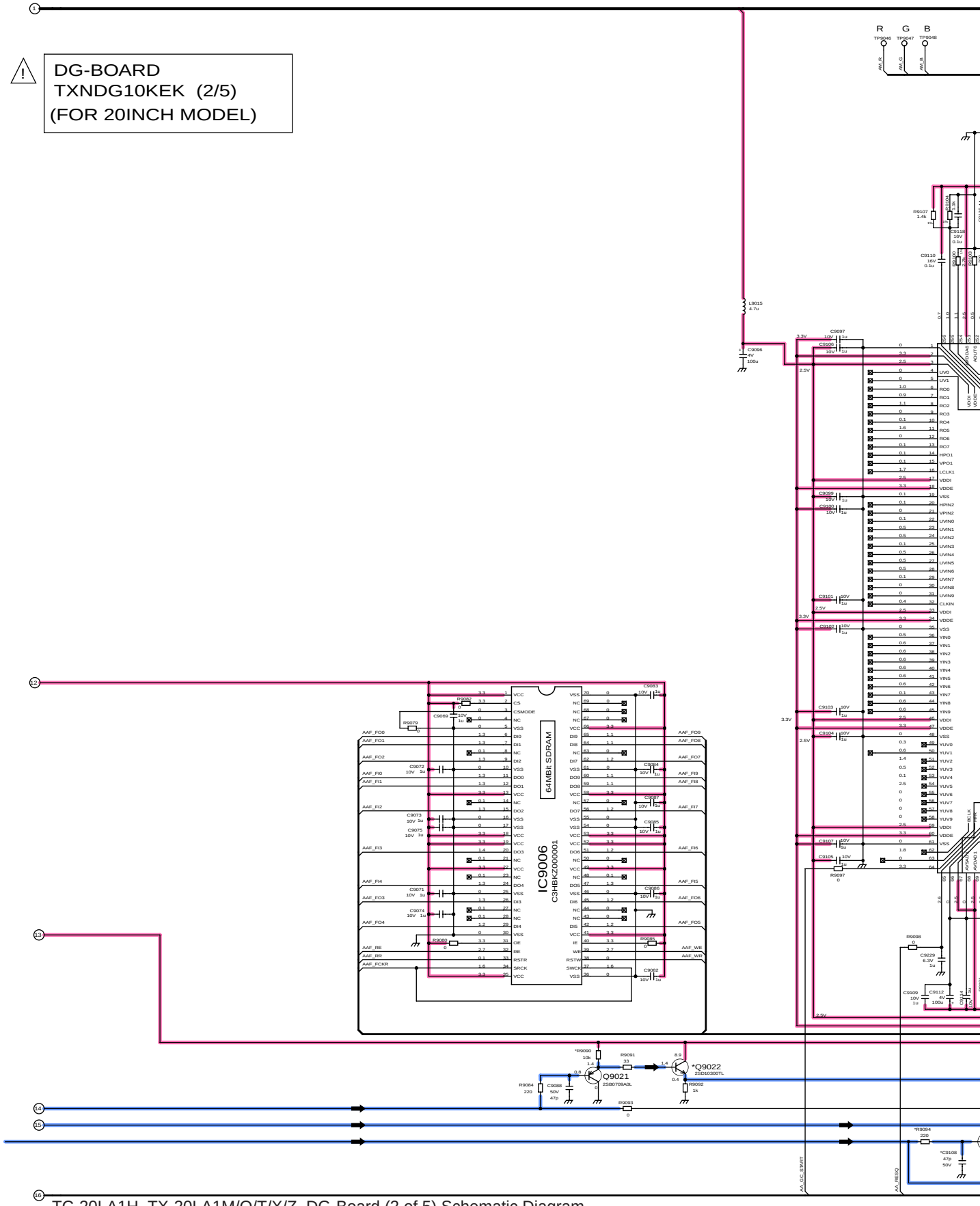
TC-20LA1H , TX-20LA1M/Q/T/X/Z
DG-Board (1 of 5) Schematic Diagram



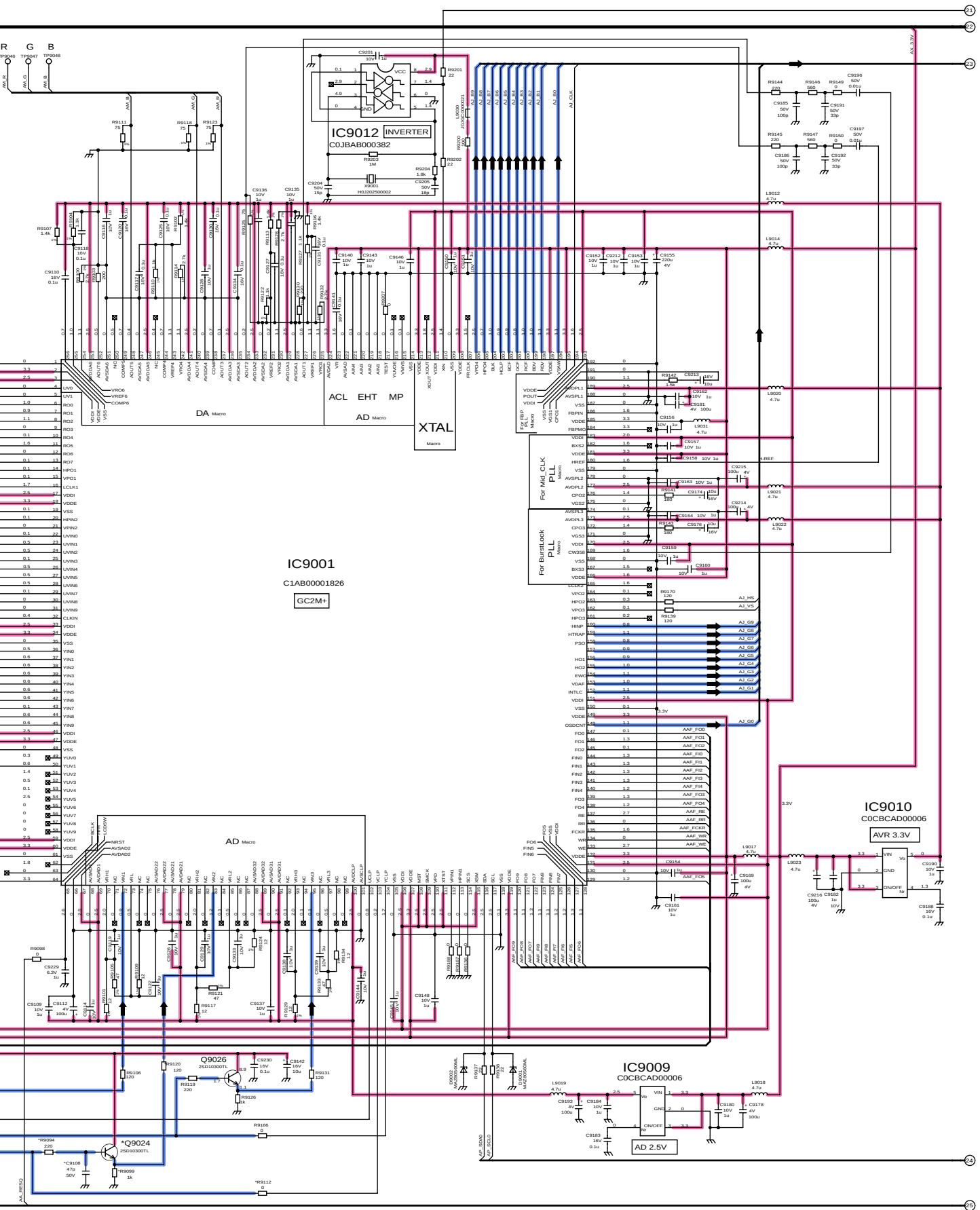
TC-20LA1H , TX-20LA1M/Q/T/X/Z DG-Board (1 of 5) Schematic Diagram

5 6 7 8 9

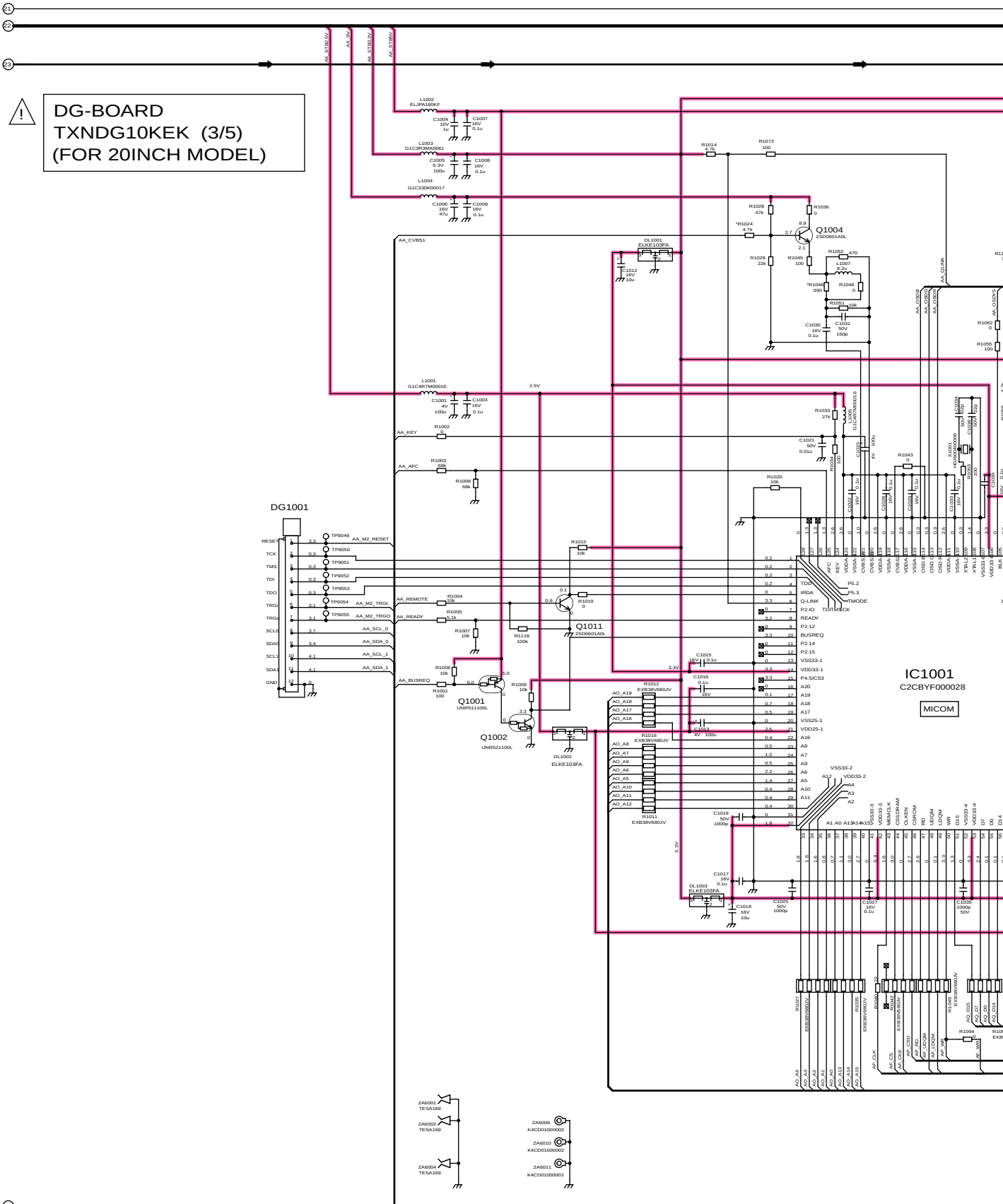
11.15. DG-Board (2 of 5) Schematic Diagram (For 20inch model)



TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (2 of 5) Schematic Diagram

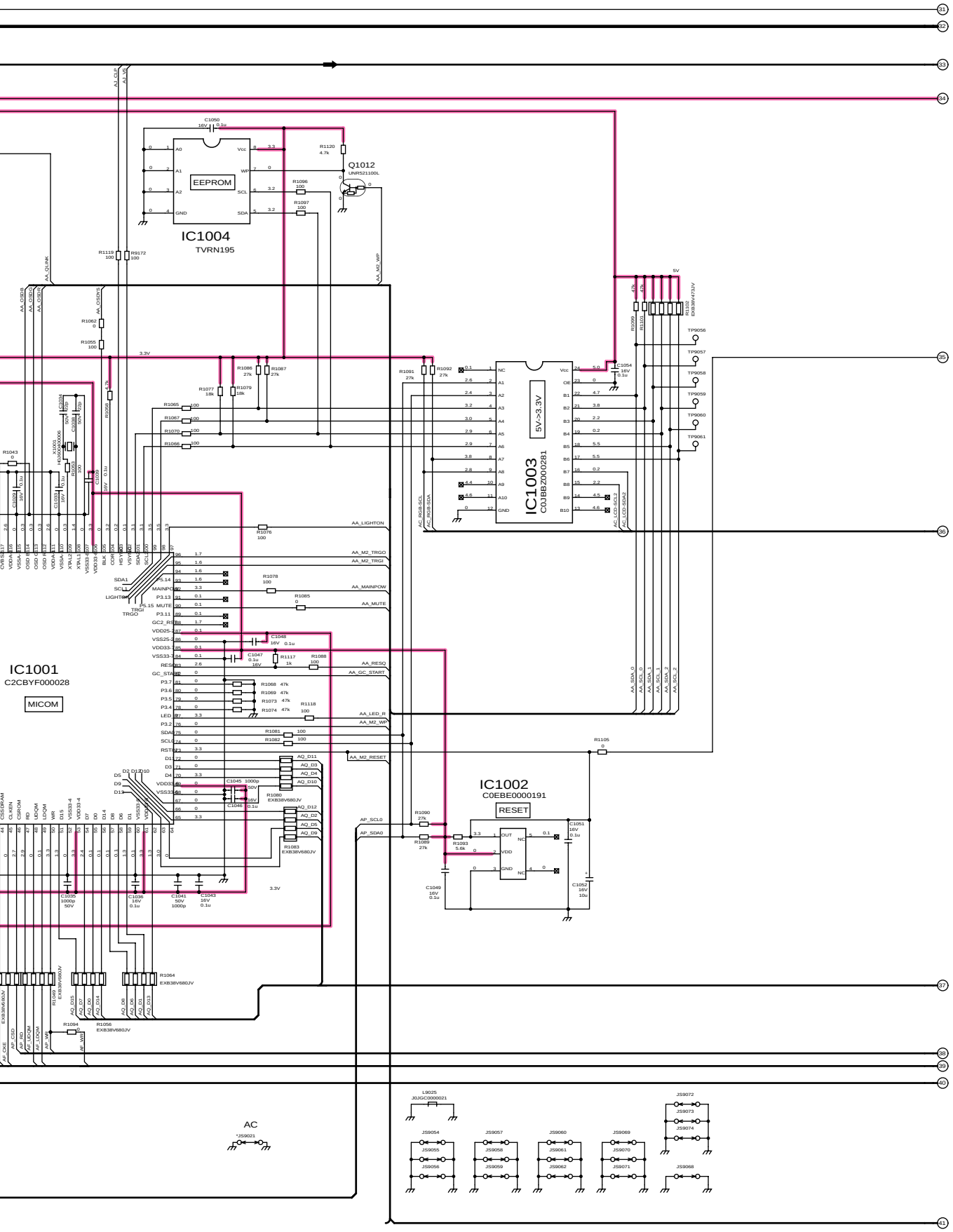

IC9012
INVERTER
C0JBAB000382
IC9001
C1AB00001826
GC2M+
IC9010
C0CBCAD00006
AVR 3.3V
IC9009
C0CBCAD00006
AD 2.5V
Q9026
2SD1030OTL
*Q9024
2SD1030TL
DA Macro
AD Macro
ACL EHT MP
XTAL
Macro
For Mid_CLK PLL
For BurstLock PLL
R G B
TP9046 TP9047 TP9048

11.16. DG-Board (3 of 5) Schematic Diagram (For 20inch model)



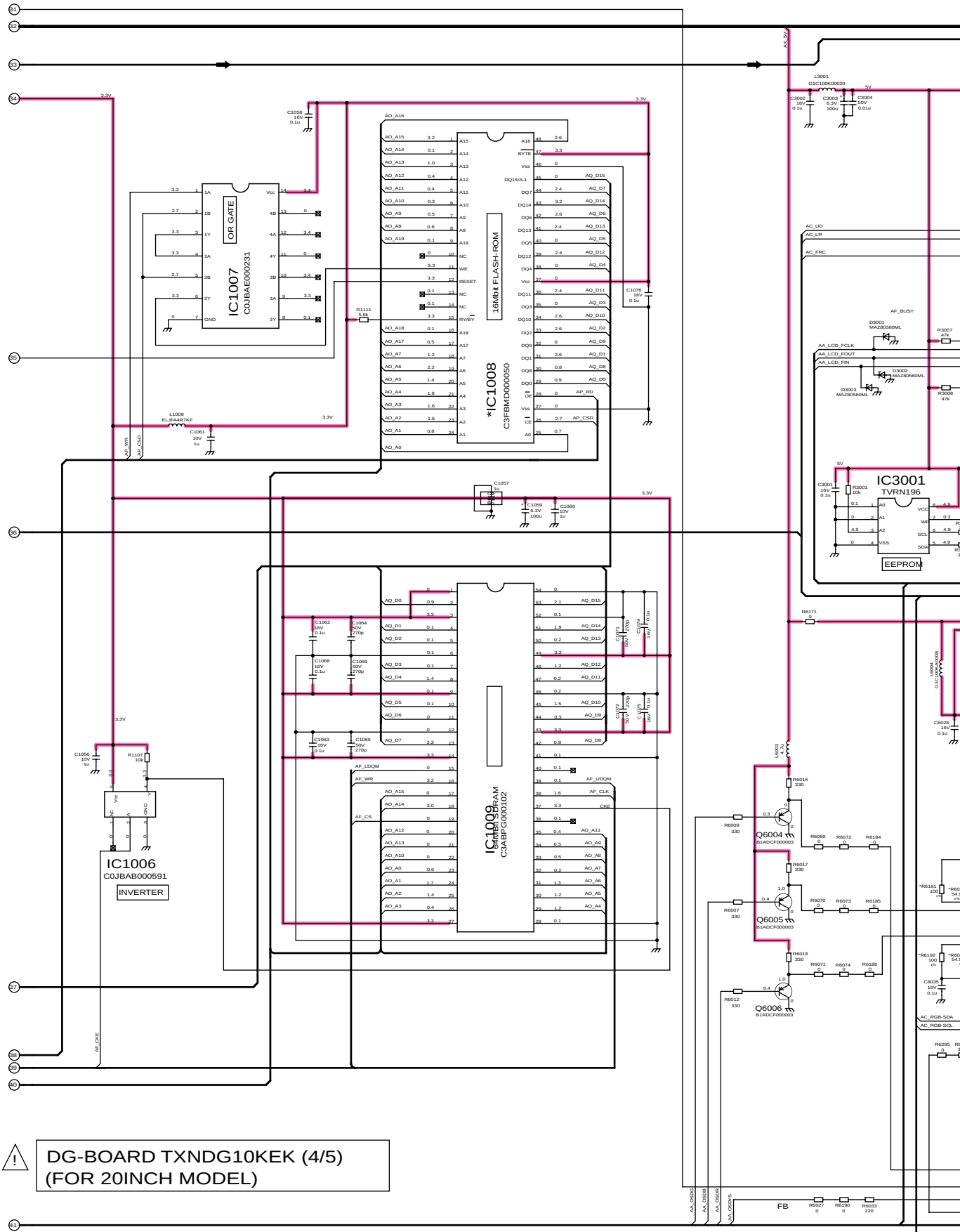
TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (3 of 5) Schematic Diagram

19 20 21 22 23

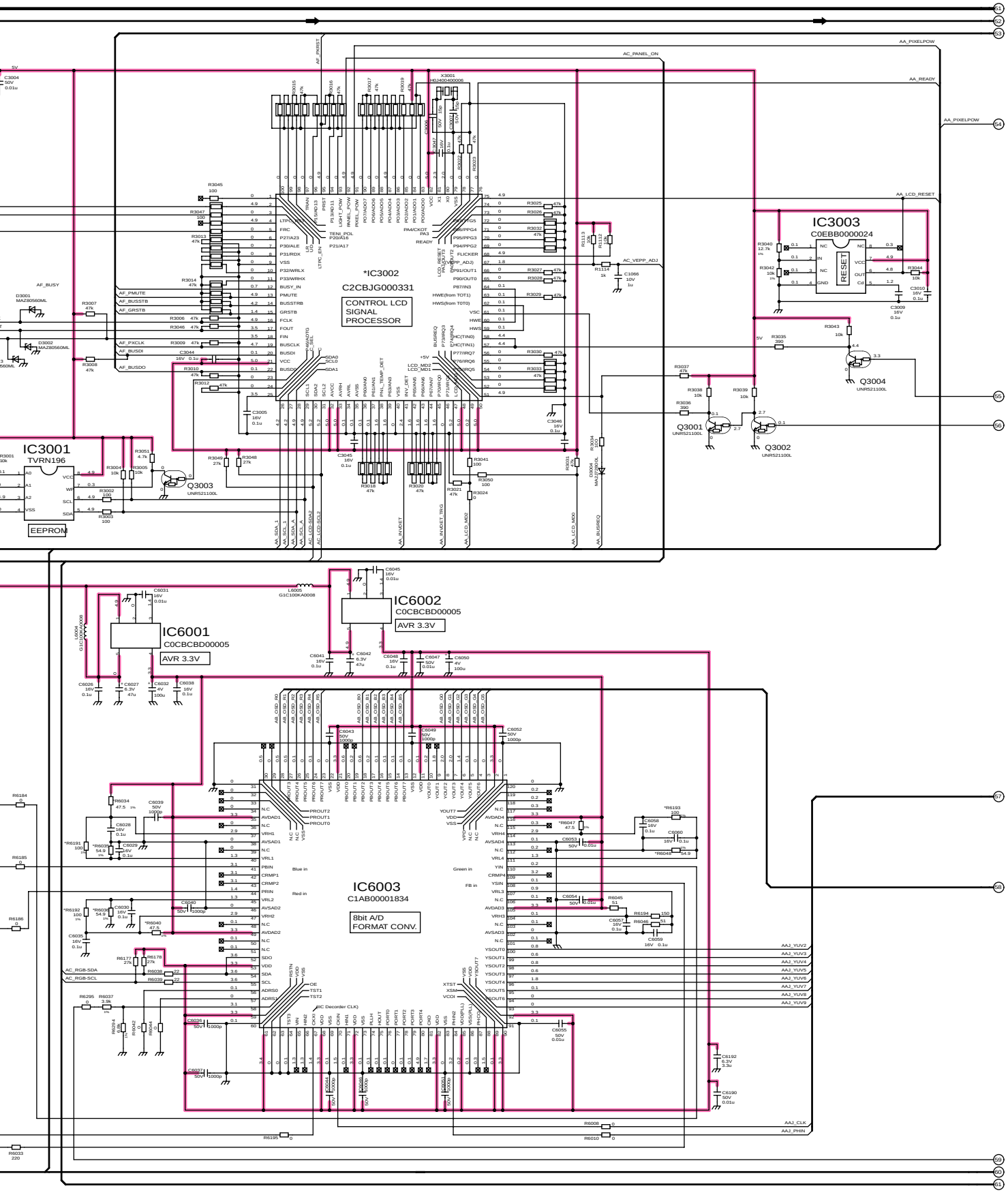


TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (3 of 5) Schematic Diagram

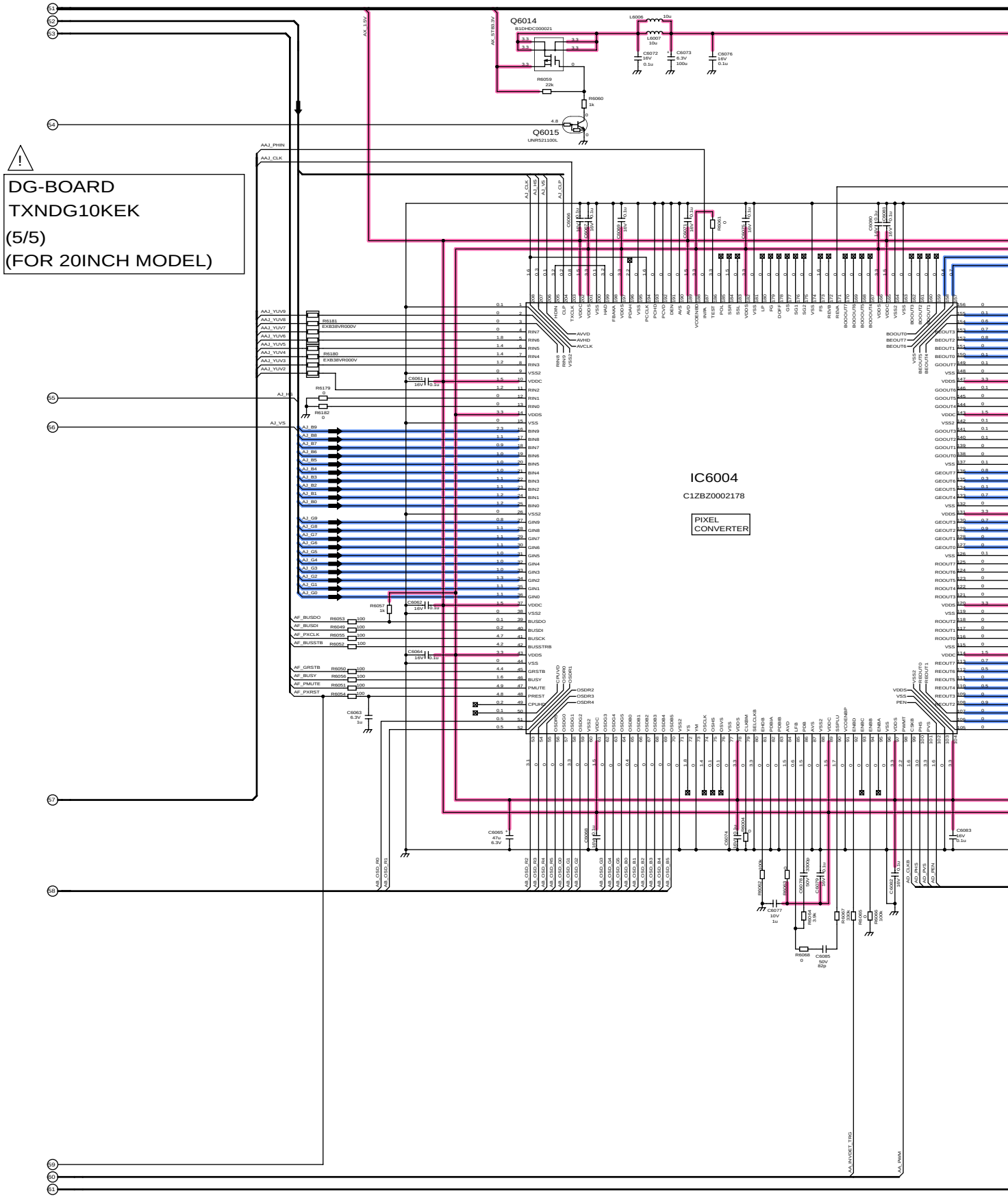
11.17. DG-Board (4 of 5) Schematic Diagram (For 20inch model)



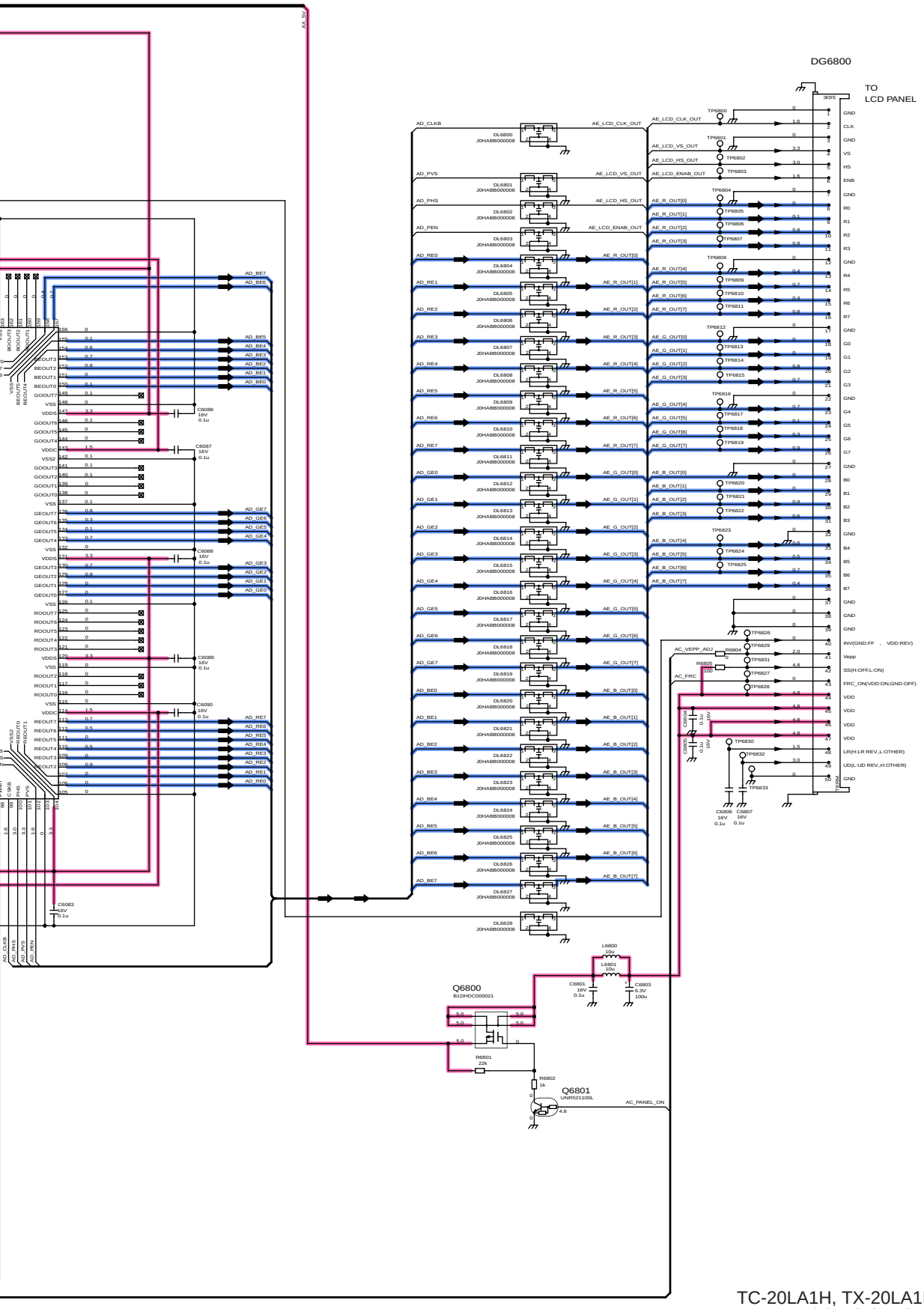
DG-BOARD TXNDG10KEK (4/5)
(FOR 20INCH MODEL)


IC3001
TVRN196
EEPROM
*IC3002
C2CBJG000331
CONTROL LCD
SIGNAL
PROCESSOR
IC3003
C0EBB0000024
RESET
IC6001
C0CBCBD00005
AVR 3.3V
IC6002
C0CBCBD00005
AVR 3.3V
IC6003
C1AB00001834
8bit A/D
FORMAT CONV.
Q3001
UNRS21100L
Q3002
UNRS21100L
Q3003
UNRS21100L
Q3004
UNRS21100L
AA_PIXELPOW
AA_READY
AA_LCD_RESET
AC_PANEL_ON
AC_VEPP_ADJ
AF_BUSY
AF_PMUTE
AF_BUSSTB
AF_GRSTB
AF_PXCLK
AF_BUSDI
AF_BUSDO
AF_PXRST
AC_RGB-SDA
AC_RGB-SCL
AAJ_YUV2
AAJ_YUV3
AAJ_YUV4
AAJ_YUV5
AAJ_YUV6
AAJ_YUV7
AAJ_YUV8
AAJ_YUV9
AAJ_CLK
AAJ_PHIN

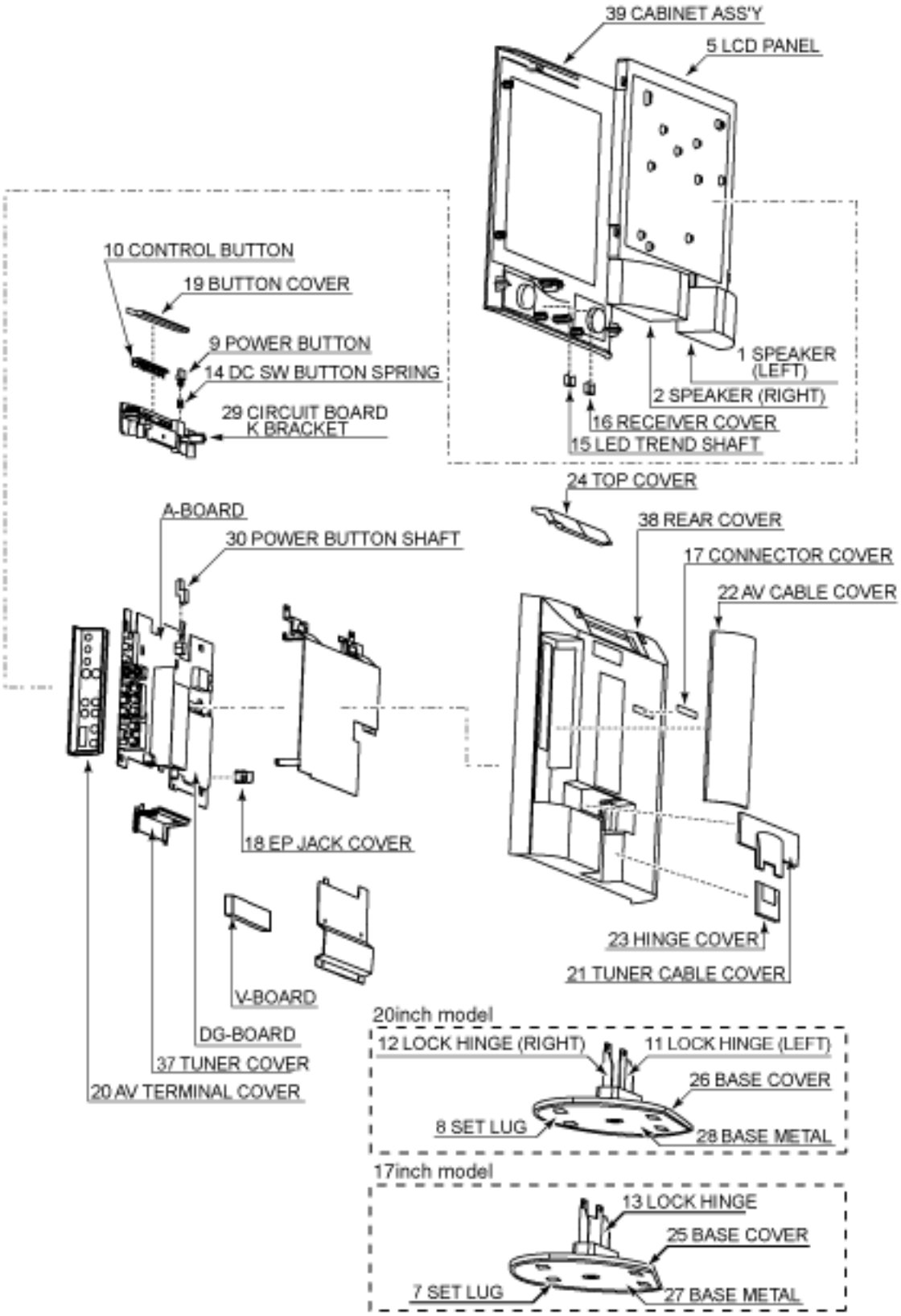
11.18. DG-Board (5 of 5) Schematic Diagram (For TX-20LA1)

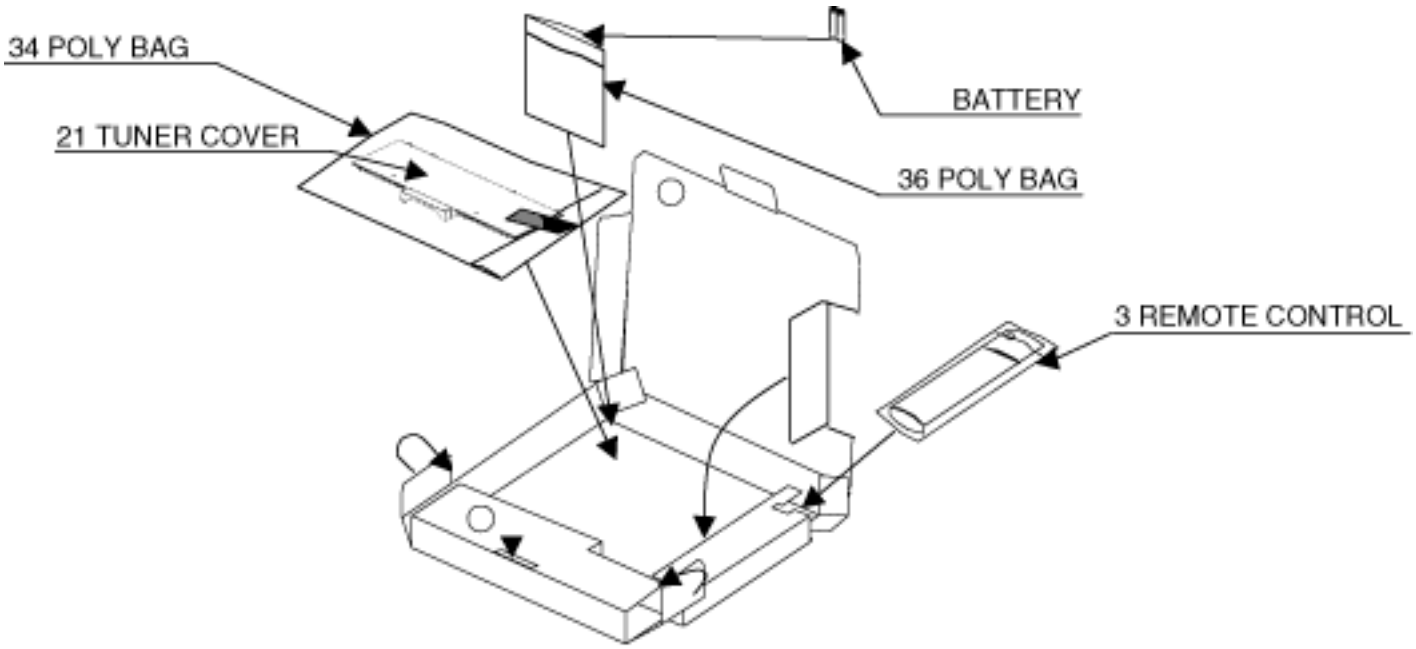


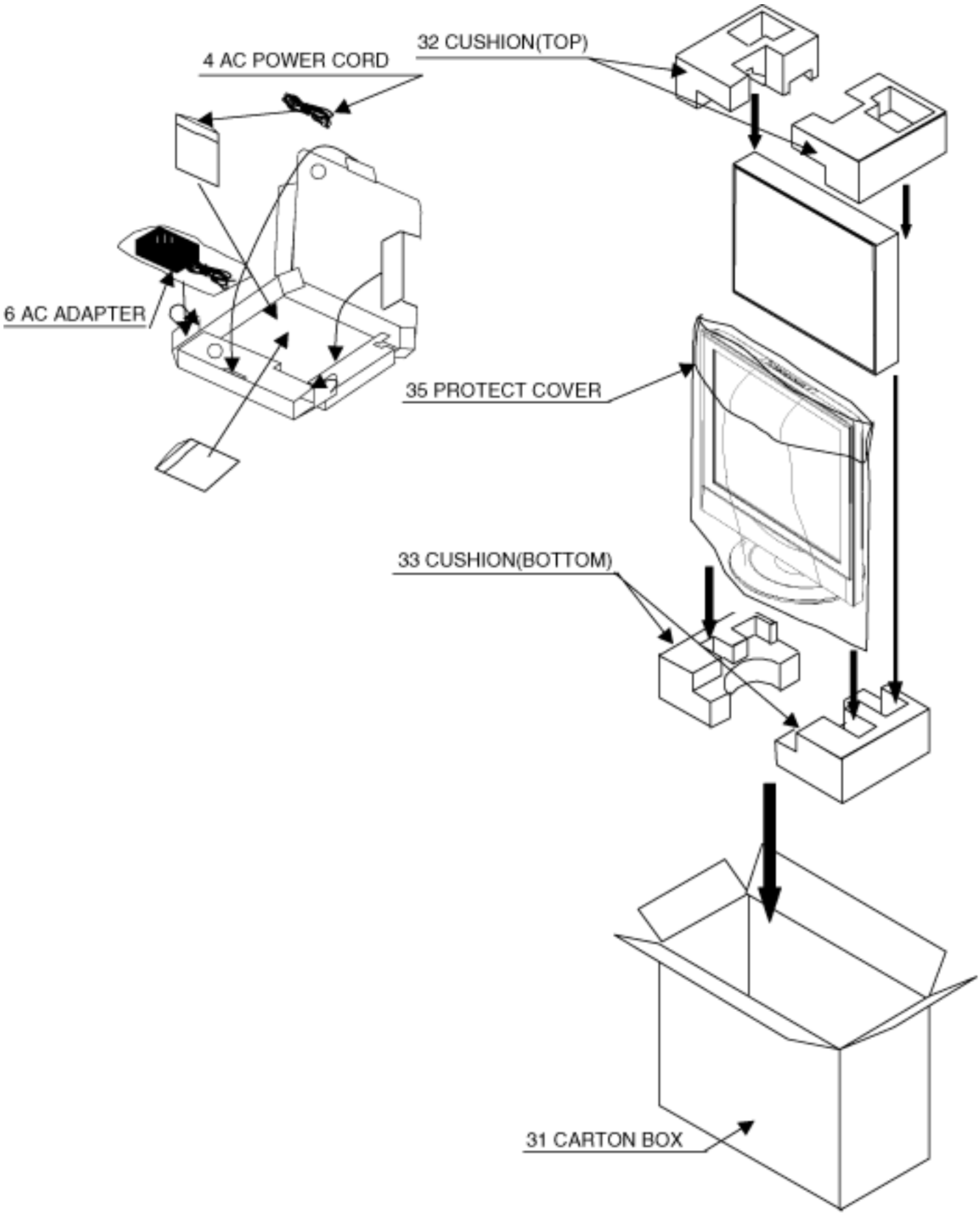
TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (5 of 5) Schematic Diagram



TC-20LA1H, TX-20LA1M/Q/T/X/Z
DG-Board (5 of 5) Schematic Diagram


39 CABINET ASS'Y
5 LCD PANEL
10 CONTROL BUTTON
19 BUTTON COVER
9 POWER BUTTON
14 DC SW BUTTON SPRING
29 CIRCUIT BOARD K BRACKET
1 SPEAKER (LEFT)
2 SPEAKER (RIGHT)
16 RECEIVER COVER
15 LED TREND SHAFT
24 TOP COVER
38 REAR COVER
17 CONNECTOR COVER
22 AV CABLE COVER
A-BOARD
30 POWER BUTTON SHAFT
18 EP JACK COVER
23 HINGE COVER
21 TUNER CABLE COVER
V-BOARD
DG-BOARD
37 TUNER COVER
20 AV TERMINAL COVER
20inch model
12 LOCK HINGE (RIGHT)
11 LOCK HINGE (LEFT)
26 BASE COVER
8 SET LUG
28 BASE METAL
17inch model
13 LOCK HINGE
25 BASE COVER
7 SET LUG
27 BASE METAL


34 POLY BAG
21 TUNER COVER
BATTERY
36 POLY BAG
3 REMOTE CONTROL


32 CUSHION(TOP)
4 AC POWER CORD
6 AC ADAPTER
35 PROTECT COVER
33 CUSHION(BOTTOM)
31 CARTON BOX

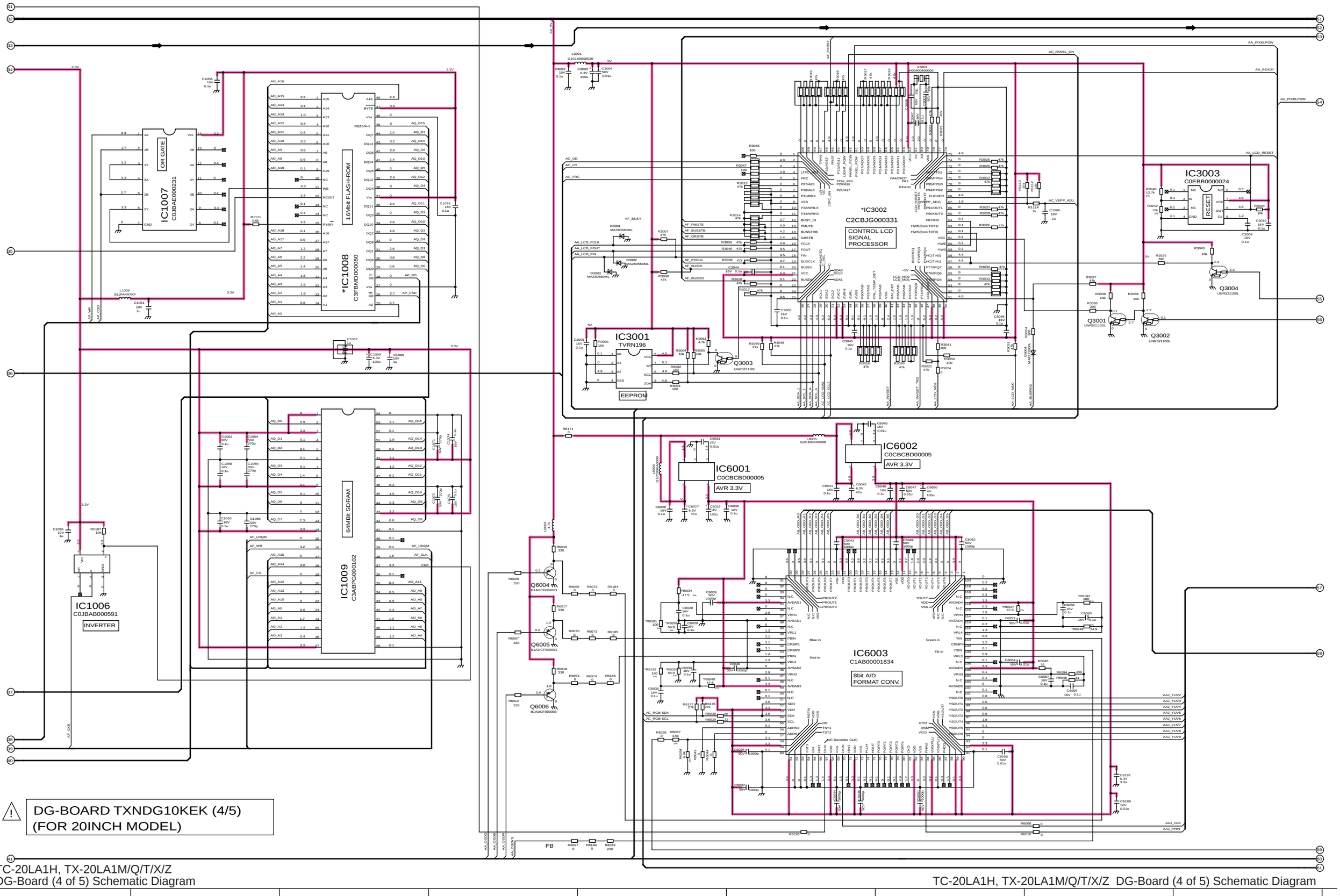
DG-BOARD
TXNDG10KEK
(5/5)
(FOR 20INCH MODEL)

IC6004
C1ZBZ0002178
PIXEL CONVERTER

DG6800

TO LCD PANEL

TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (5 of 5) Schematic Diagram


IC1007
C0JBAE000231
OR GATE
IC1008
C3FBMD000050
16Mbit FLASH-ROM
IC1009
C3ABPG000102
64MBit SDRAM
IC1006
C0JBAB000591
INVERTER
IC3001
TVRN196
EEPROM
IC3003
C0EBB0000024
RESET
*IC3002
C2CBJG000331
CONTROL LCD SIGNAL PROCESSOR
IC6001
C0CBCBD00005
AVR 3.3V
IC6002
C0CBCBD00005
AVR 3.3V
IC6003
C1AB00001834
8bit A/D FORMAT CONV.
Q3001
UNRS21100L
Q3002
UNRS21100L
Q3003
UNRS21100L
Q3004
UNRS21100L
Q6004
B1ADCF000003
Q6005
B1ADCF000003
Q6006
B1ADCF000003
X3001
EFOEC4004A5
D3001
MAZ80560ML
D3002
MAZ80560ML
D3003
MAZ80560ML
D3004
MA4062WKL
L3001
G1C100K00020
L6003
4.7u
L6005
G1C100KA0008
L6004
G1C100KA0008
C1058
16V
0.1u
C1059
6.3V
100u
C1060
10V
1u
C1061
10V
1u
C1062
16V
0.1u
C1063
16V
0.1u
C1064
50V
270p
C1065
50V
270p
C1066
10V
1u
C1068
16V
0.1u
C1069
50V
270p
C1073
50V
270p
C1074
50V
270p
C1075
50V
270p
C1076
16V
0.1u
C1077
50V
270p
C1078
50V
270p
C1056
10V
1u
C1057
10V
1u
C3001
16V
0.1u
C3002
16V
0.1u
C3003
6.3V
100u
C3004
50V
0.01u
C3005
16V
0.1u
C3006
50V
0.01u
C3007
50V
0.01u
C3008
50V
0.01u
C3009
16V
0.1u
C3010
16V
0.1u
C3035
16V
0.1u
C3044
16V
0.1u
C3045
16V
0.1u
C3046
16V
0.1u
C6026
16V
0.1u
C6027
6.3V
47u
C6028
16V
0.1u
C6029
16V
0.1u
C6030
16V
0.1u
C6031
16V
0.01u
C6032
4V
100u
C6034
16V
0.1u
C6035
16V
0.1u
C6038
16V
0.1u
C6039
50V
1000p
C6040
50V
1000p
C6041
16V
0.1u
C6042
6.3V
47u
C6043
50V
1000p
C6044
50V
1000p
C6045
16V
0.01u
C6047
50V
0.01u
C6048
16V
0.1u
C6049
50V
1000p
C6050
4V
100u
C6052
50V
1000p
C6053
50V
0.01u
C6054
50V
0.01u
C6055
50V
0.01u
C6057
16V
0.1u
C6058
16V
0.1u
C6059
16V
0.1u
C6060
16V
0.1u
C6190
50V
0.01u
C6192
6.3V
3.3u
C6193
16V
0.1u
C6194
16V
0.1u
C6195
50V
0.01u
C6196
50V
0.01u
C6197
50V
0.01u
C6198
50V
0.01u
C6199
50V
0.01u
C6200
50V
0.01u
C6201
50V
0.01u
C6202
50V
0.01u
C6203
50V
0.01u
C6204
50V
0.01u
C6205
50V
0.01u
C6206
50V
0.01u
C6207
50V
0.01u
C6208
50V
0.01u
C6209
50V
0.01u
C6210
50V
0.01u
C6211
50V
0.01u
C6212
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0.01u
C6216
50V
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C6217
50V
0.01u
C6218
50V
0.01u
C6219
50V
0.01u
C6220
50V
0.01u
C6221
50V
0.01u
C6222
50V
0.01u
C6223
50V
0.01u
C6224
50V
0.01u
C6225
50V
0.01u
C6226
50V
0.01u
C6227
50V
1000p
R1107
10k
R1111
5.6k
R1114
1k
R3001
10k
R3002
100
R3003
100
R3004
10k
R3005
10k
R3007
47k
R3008
47k
R3009
47k
R3010
47k
R3012
47k
R3013
47k
R3014
47k
R3045
100
R3046
47k
R3047
100
R3048
27k
R3049
27k
R3051
4.7k
R3013
47k
R3020
47k
R3021
47k
R3022
47k
R3023
47k
R3024
0
R3025
47k
R3026
47k
R3027
47k
R3028
47k
R3029
47k
R3030
47k
R3031
47k
R3032
47k
R3033
47k
R3034
47k
R3035
10k
R3036
390
R3037
47k
R3038
10k
R3039
10k
R3040
12.7k
R3041
100
R3042
10k
R3043
10k
R3044
10k
R3050
100
R6007
330
R6008
0
R6009
330
R6010
0
R6012
330
R6016
330
R6017
330
R6018
330
R6027
0
R6033
220
R6034
47k
R6035
47k
R6037
3.9k
R6038
22
R6039
22
R6040
47
R6041
51
R6042
51
R6043
51
R6044
47k
R6045
51
R6046
51
R6047
51
R6069
0
R6070
0
R6071
0
R6072
0
R6073
0
R6074
0
R6171
0
R6173
0
R6174
0
R6175
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R6176
0
R6177
27k
R6178
27k
R6184
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R6185
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R6186
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R6190
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R6192
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R6195
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R6205
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R6206
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R6207
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R6208
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R6209
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R6210
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R6213
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R6214
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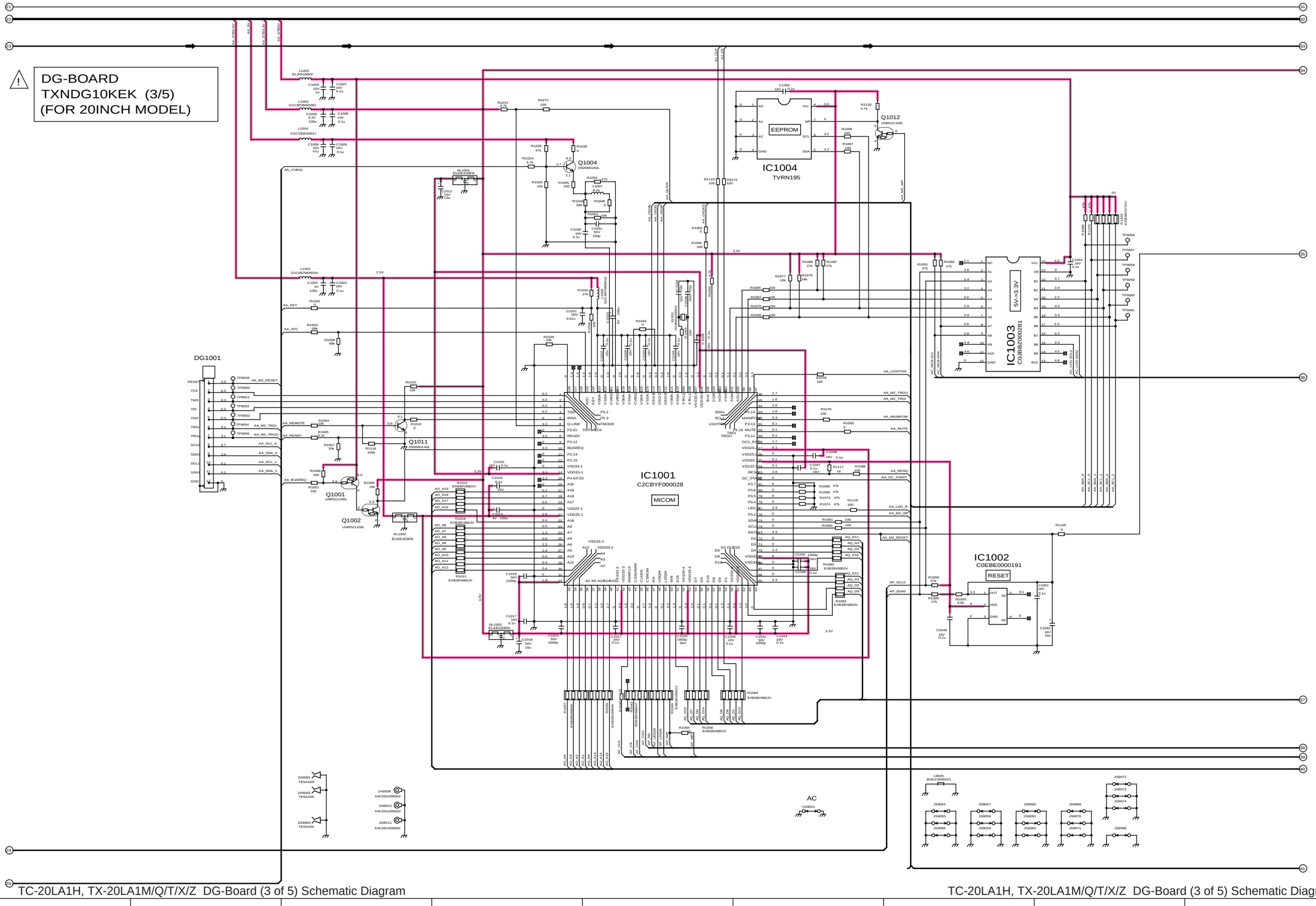
DG-BOARD
TXNDG10KEK (3/5)
(FOR 20INCH MODEL)



TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (3 of 5) Schematic Diagram

TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (3 of 5) Schematic Diagram

19 20 21 22 23 24 25 26 27

DG-BOARD
TXNDG10KEK (2/5)
(FOR 20INCH MODEL)

IC9001
C1AB000001826
GC2M+

IC9012 INVERTER
C0JBAB000382

IC9010
C0CBCAD00006
AVR 3.3V

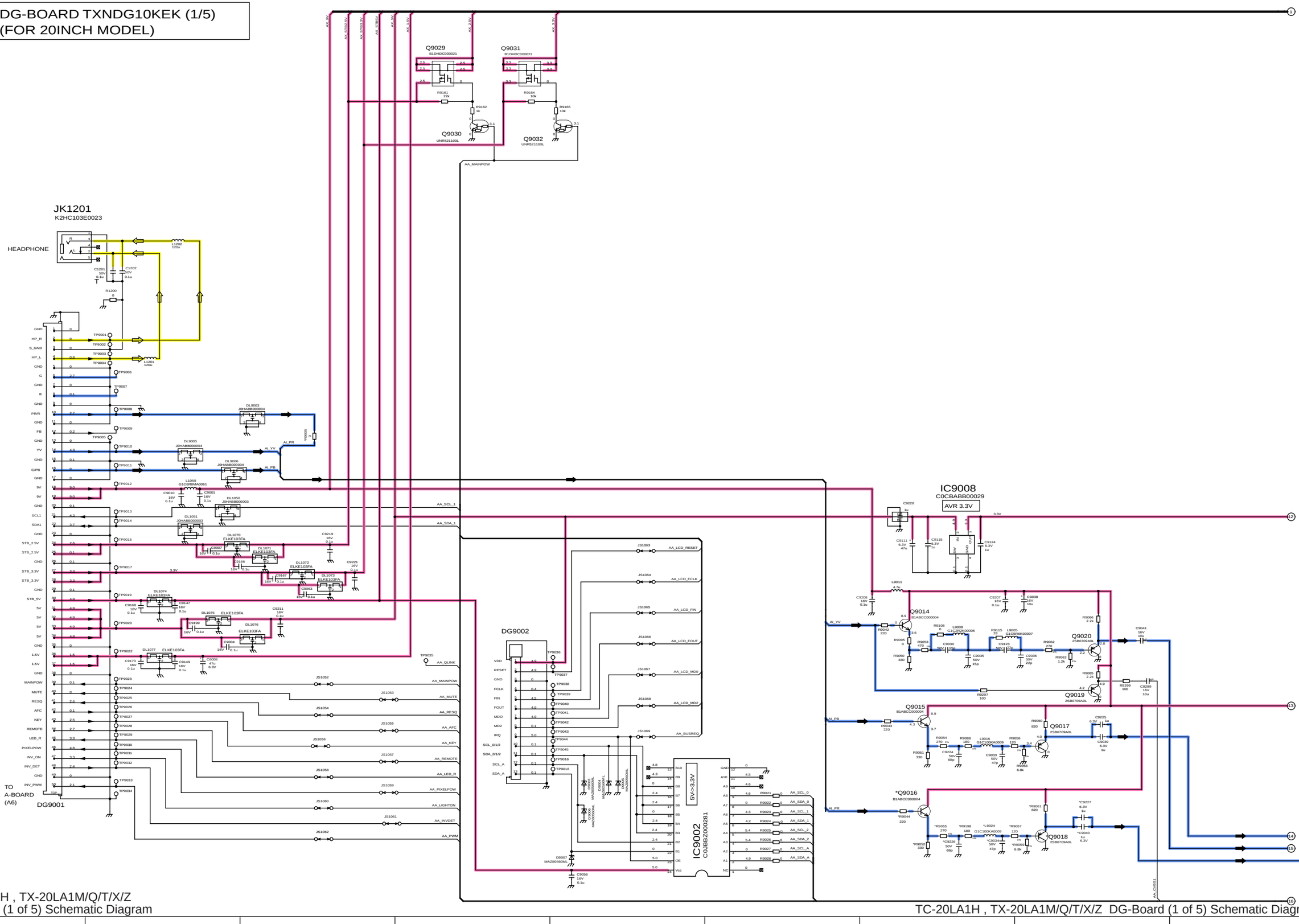
IC9009
C0CBCAD00006
AD 2.5V

IC9006
C3HBKZ000001
64MBit SDRAM

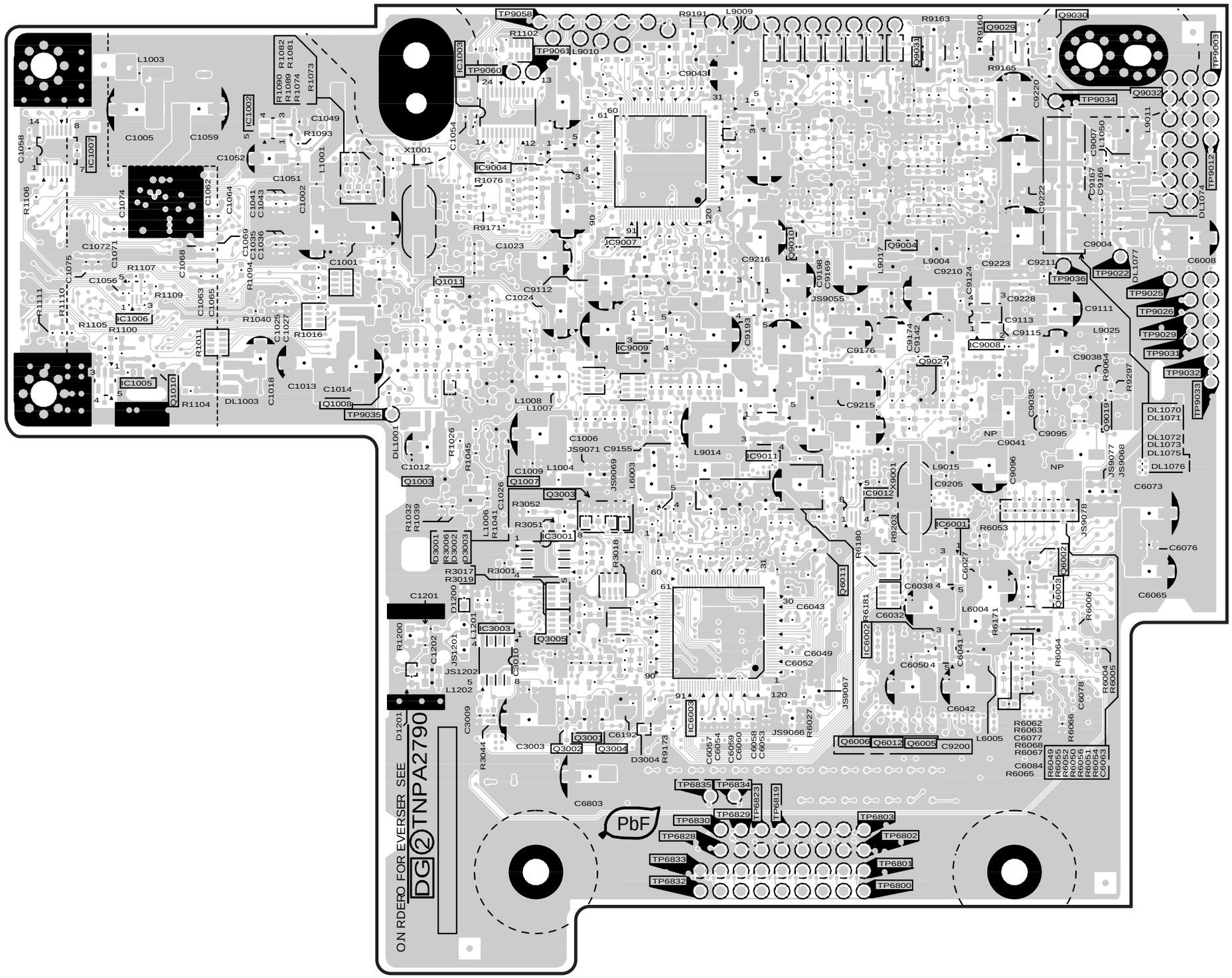
DA Macro
AD Macro
ACL EHT MP
XTAL
For Mid_CLK PLL Macro
For BurstLock PLL Macro

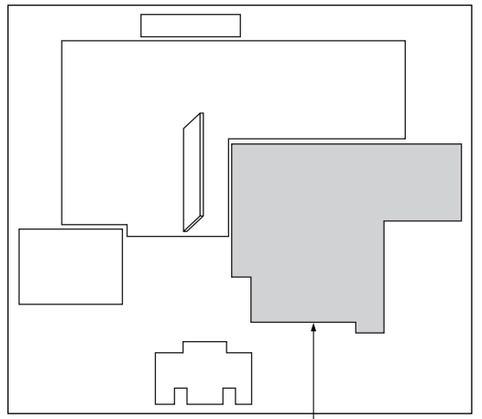
TC-20LA1H, TX-20LA1M/Q/T/X/Z DG-Board (2 of 5) Schematic Diagram

DG-BOARD TXNDG10KEK (1/5)
(FOR 20INCH MODEL)



DG-BOARD(FOIL SIDE)
TXNDG10KEK (TC-20LA1H, TX-20LA1M/Q/T/X/Z)





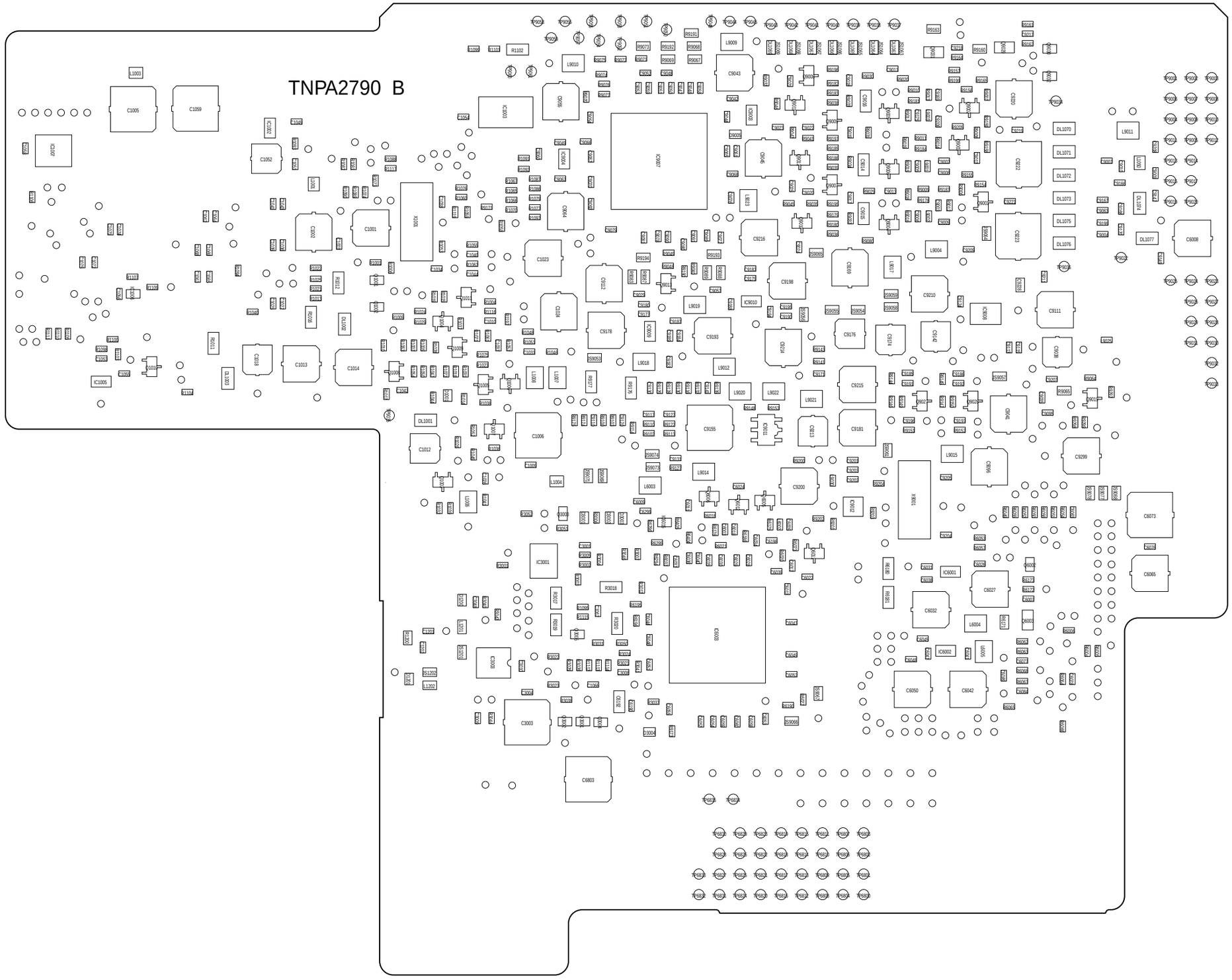
Parts Location

DG-BOARD (FOIL SIDE)

IC		Q9003	F-6
IC1002	B-5	Q9004	F-5
IC1003	C-6	Q9005	F-6
IC1005	A-4	Q9006	F-6
IC1006	A-4	Q9007	E-5
IC1007	A-5	Q9008	E-6
IC3001	D-3	Q9009	E-5
IC3003	C-3	Q9010	E-5
IC6001	F-3	Q9011	E-5
IC6002	E-3	Q9012	E-5
IC6003	D-3	Q9013	D-4
IC6015	D-3	Q9019	G-4
IC9003	E-6	Q9027	F-4
IC9004	C-5	Q9028	F-4
IC9007	D-5	Q9029	F-6
IC9008	F-4	Q9030	F-6
IC9009	D-4	Q9031	F-6
IC9010	E-5	Q9032	F-6
IC9011	E-4		
IC9012	E-3	**TP**	
TRANSISTOR		TP6800	E-1
Q1001	C-5	TP6801	E-1
Q1002	C-4	TP6802	F-2
Q1003	C-3	TP6803	E-2
Q1004	C-4	TP6819	E-2
Q1005	C-4	TP6823	E-2
Q1006	C-4	TP6828	D-2
Q1007	C-3	TP6829	E-2
Q1008	C-4	TP6830	E-2
Q1009	C-4	TP6832	D-1
Q1010	B-4	TP6833	D-1
Q1011	C-5	TP6834	E-2
Q3001	D-2	TP6835	E-2
Q3002	D-2	TP9003	G-6
Q3003	D-3	TP9012	G-5
Q3004	D-2	TP9022	G-5
Q3005	D-3	TP9025	G-5
Q6002	F-3	TP9026	G-4
Q6003	F-3	TP9029	G-4
Q6005	F-2	TP9031	G-4
Q6006	E-2	TP9032	G-4
Q6011	E-3	TP9033	G-4
Q6012	F-2	TP9034	G-6
Q9001	F-5	TP9035	C-4
Q9002	F-6	TP9036	G-5
		TP9058	D-6
		TP9060	C-6
		TP9061	D-6

TC-20LA1H, TX-20LA1M/Q/T/X/Z
DG-BOARD TXNDG10KEK

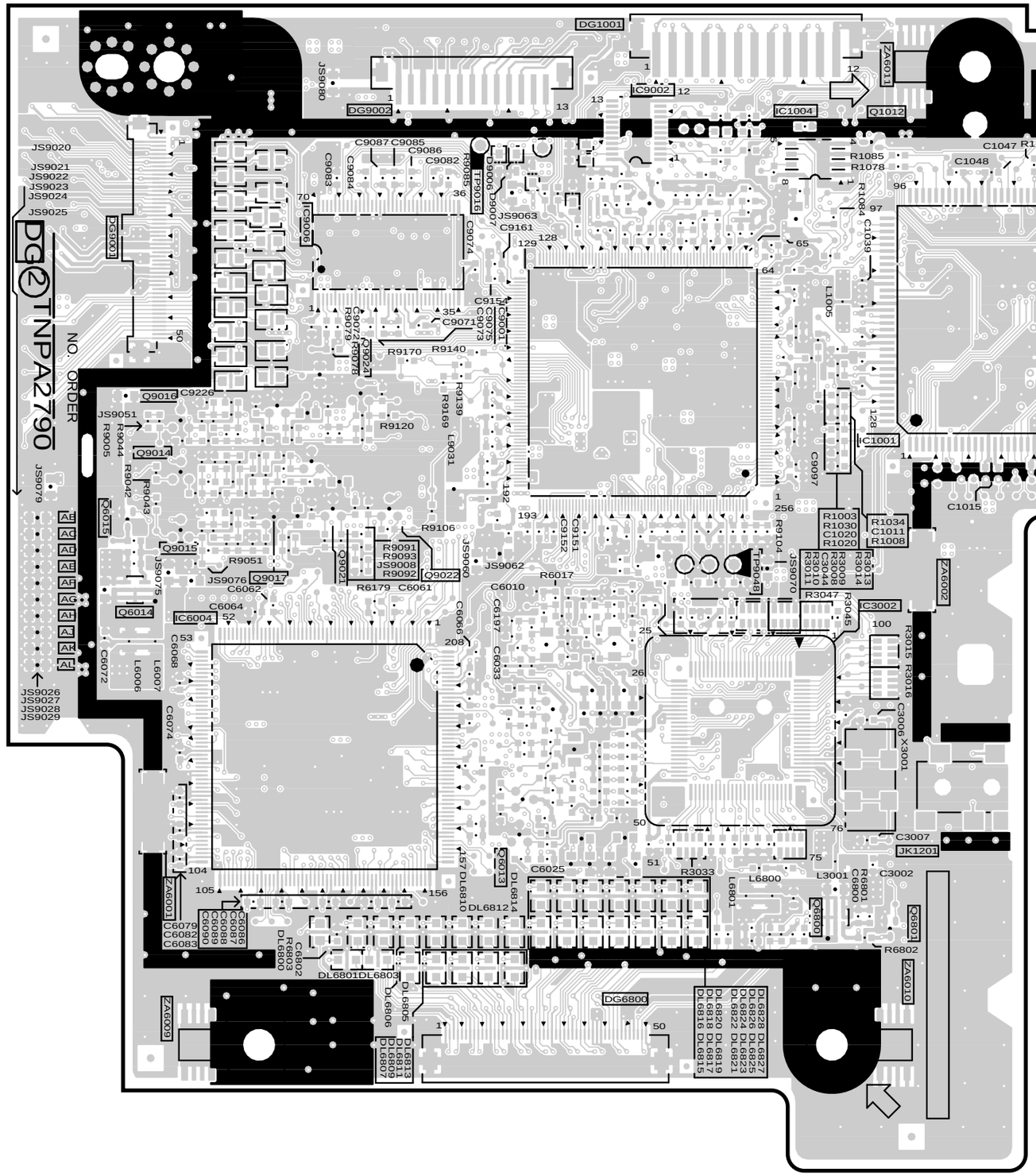
DG-BOARD (FOIL SIDE) (20inch model)

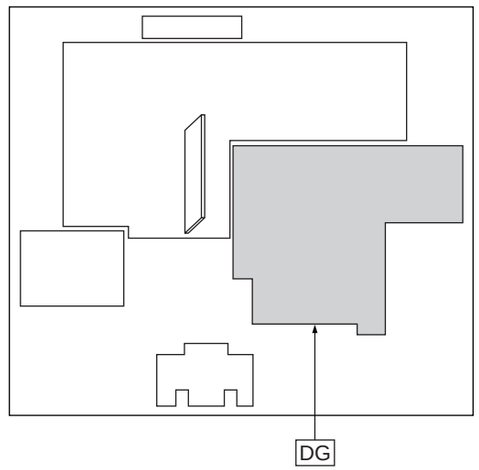


TC-20LA1H, TX-20LA1M/Q/T/X/Z
DG-BOARD (TXNDG10KEK)

TC-20LA1H, TX-20LA1M/Q/T/X/Z
DG-BOARD (TXNDG10KEK)

DG-BOARD(COMPONENT SIDE)
TXNDG10KEK (TC-20LA1H, TX-20LA1M/Q/T/X/Z)



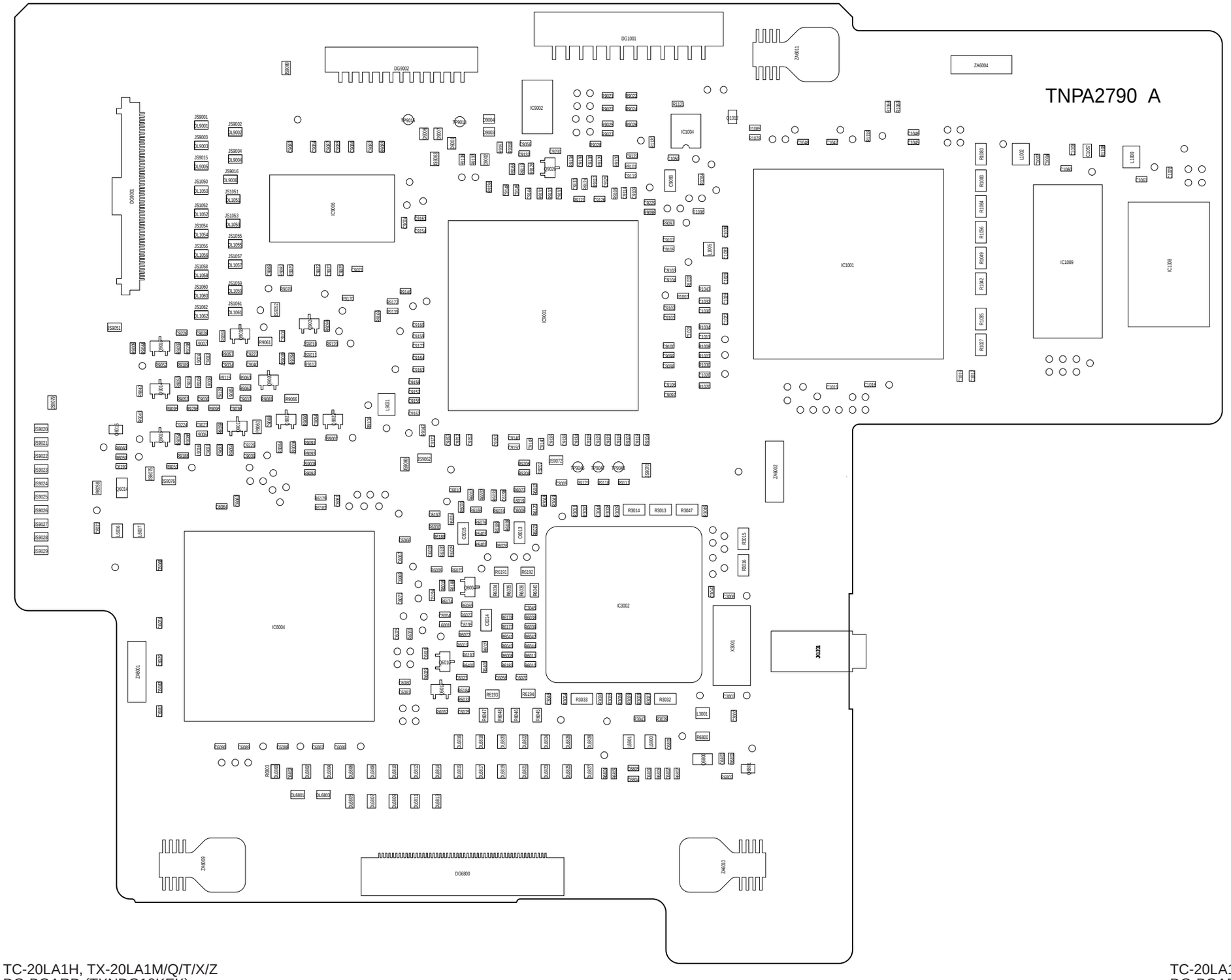


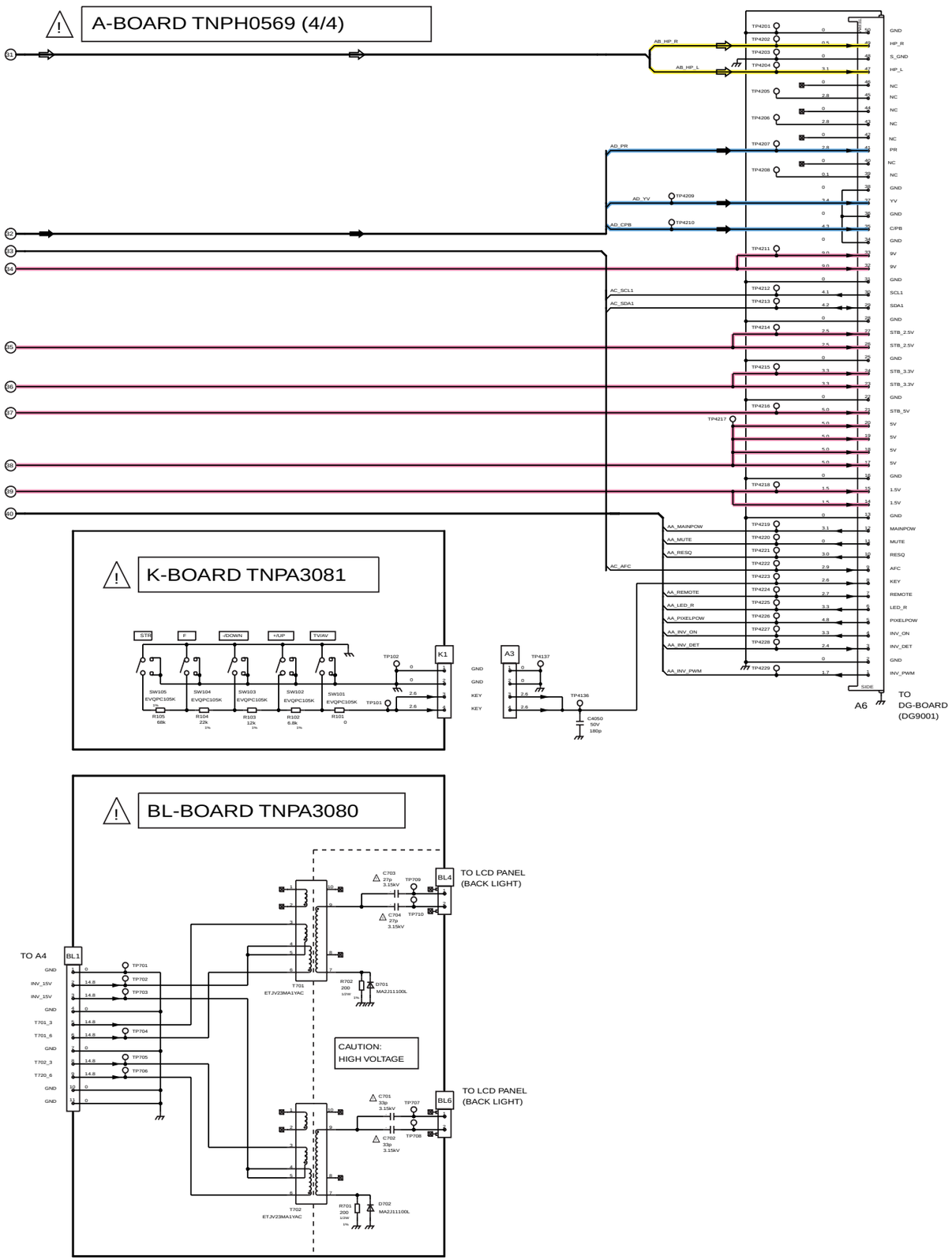
Parts Location

DG-BOARD (COMPONENT SIDE)			
IC		Q6015	A-4
IC1001	E-4	Q6800	D-2
IC1004	D-6	Q6801	E-2
IC1008	G-5	Q9014	A-4
IC1009	F-5	Q9015	A-4
IC3002	D-3	Q9016	A-4
IC6004	B-3	Q9017	B-4
IC9001	D-4	Q9018	B-4
IC9002	D-6	Q9020	B-4
IC9006	B-5	Q9021	B-4
TRANSISTOR		Q9022	C-4
Q1012	E-6	Q9024	B-4
Q6004	C-3	Q9026	D-5
Q6010	C-2	**TP**	
Q6013	C-2	TP9016	C-5
Q6014	A-3	TP9048	D-4

TC-20LA1H, TX-20LA1M/Q/T/X/Z)
DG-BOARD TXNDG10KEK

DG-BOARD (COMPONET SIDE) (20inch model)





TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram

A-BOARD TNPH0569 (3/4)

V-BOARD TNPA3082

TO A5

V1

L+ L- S_GND REMOTE GND STB_3.3V GND LED_15V GND LED_R S_GND R+ R-

TP211 TP210 TP209 TP208 TP207 TP206 TP205 TP204 TP203 TP202 TP201

TP213 TP212 TP215 TP214

V2 V3

R-CH L-CH

POWER

Q202 UNRS2110GL

D204 MAZ80430ML

D203 B3CKE0000006

R210 680 GREEN

R209 2.15k 1/8W

R208 2.15k 1/8W

R207 1.82k 1/8W

R206 1.82k 1/8W

Q201 UNRS2190GL

D205 MAZ80430ML

STANDBY

LED_15V

STB_3.3V

R204 47

C202 16V 47u

R203 47

D202 MAZ80430ML

R202 1k

REMOTE CONTROL RECEIVER

RM201 PNA4701M05TV

VOUT GND VCC

R201 2.2k

C201 50V 0.01u

D201 MAZ80430ML

D2002 MA2J11100L

R2014 1.5k

R2015 180k

Q2007 2SD0601A0L

C2026 100u 25V

C2027 100u 25V

D2005 MA2J11100L

R2021 22k

AA_RESQ

RESET

R2017 10k

R2018 100k

Q2009 2SD0601A0L

RESET

9V

MUTE

Q2006 2SD0601A0L

R2013 470

R2012 100k

AA_MUTE

R2019 1M

D2004 MA3X157A0L

C2025 100u 25V

Q2008 2SB0709A0L

R2016 22k

Q2010 2SB0709A0L

R2020 10k

R2022 47k

C2028 22u 50V

D2003 MA3X152E0L

D2008 MA3X152E0L

POWER ON MUTE

AA_MUTE_OUT

R609 100k

R612 6.49k

R614 4.32k

AA_INV_OUT

C613 50V 0.1u

IC602

INV. DET

C0ABCA000064

R611 4.32k

R610 4.32k

R636 6.34k

R635 4.32k

C626 50V 10u

C631 16V 0.33u

D613 MA2J11100L

D614 MA2J11100L

R632 6.34k

C617 50V 10u

R629 4.32k

C622 16V 0.33u

D609 MA2J11100L

D610 MA2J11100L

TO LCD PANEL (BACK LIGHT)

S

C629 27p 3.15kV

TP643 TP644

A7

C630 27p 3.15kV

SWTICHING

PA602 ERBFE4R00J

C609 0.1u 50V

C611 2.2u 50V

C632 1000p 50V

C642 1000p 50V

D604 B0JCPD000012

R618 680 1/2W

C634 1000p 50V

R625 680 1/2W

C635 1000p 50V

Q607 B1BBFF000001

C619 50V 0.056u

C621 50V 0.056u

C624 50V 0.056u

Q608 B1BBFF000001

R630 3.3 1/2W

R631 3.3 1/2W

JS606

R638 22

L606 120u

INV ON/OFF

Q601 B1DBED000001

L604 EXCELSR35T

L605 J0JHC0000001

SWTICHING

T601 ETJV23MA1YAC

D611 MA2J11100L

R633 220 1/2W

CAUTION: HIGH VOLTAGE

9V

STB_2.5V

STB_3.3V

A4 TO BL1

GND INV_15V INV_15V GND T701_3 T701_6 GND T702_3 T702_6 GND GND

TP647 TP648 TP649 TP650 TP651 TP652 TP653

PA601 ERBFE4R00J

C608 0.1u 50V

C610 50V 2.2u

C633 1000p 50V

C641 1000p 50V

D603 B0JCPD000012

R617 680 1/2W

C636 1000p 50V

R627 680 1/2W

C637 1000p 50V

Q605 B1BBFF000001

C618 50V 0.056u

C620 50V 0.1u

C623 50V 0.1u

Q606 B1BBFF000001

R627 3.3 1/2W

R628 3.3 1/2W

INV ON/OFF

Q602 B1DBED000001

R639 22

L602 EXCELSR35T

L603 J0JHC0000001

L607 120u

SWTICHING

T602 ETJV23MA1YAC

D612 MA2J11100L

R634 220 1/2W

TO LCD PANEL (BACK LIGHT)

S

C627 33p 3.15kV

TP641 TP642

A8

C628 33p 3.15kV

C602 470u 25V

C603 470u 25V

C842 50V 0.1u

C601 25V 470u

C604 50V 0.1u

L601 ELESN330JA

R604 18

AA_INV_ON

R601 100

C605 50V 10u

C606 50V 0.1u

IC601

C0JBAZ002057

INV ON/OFF

R603 18

R606 330

R602 22

AA_INV_PWB

R637 10k

C607 0.22u 16V

R605 0

D601 MA2J72300L

R608 12k

R615 6.8k

C612 1u 10V

R619 1k

Q604 UNR21130L

SHORT DET

R616 6.8k

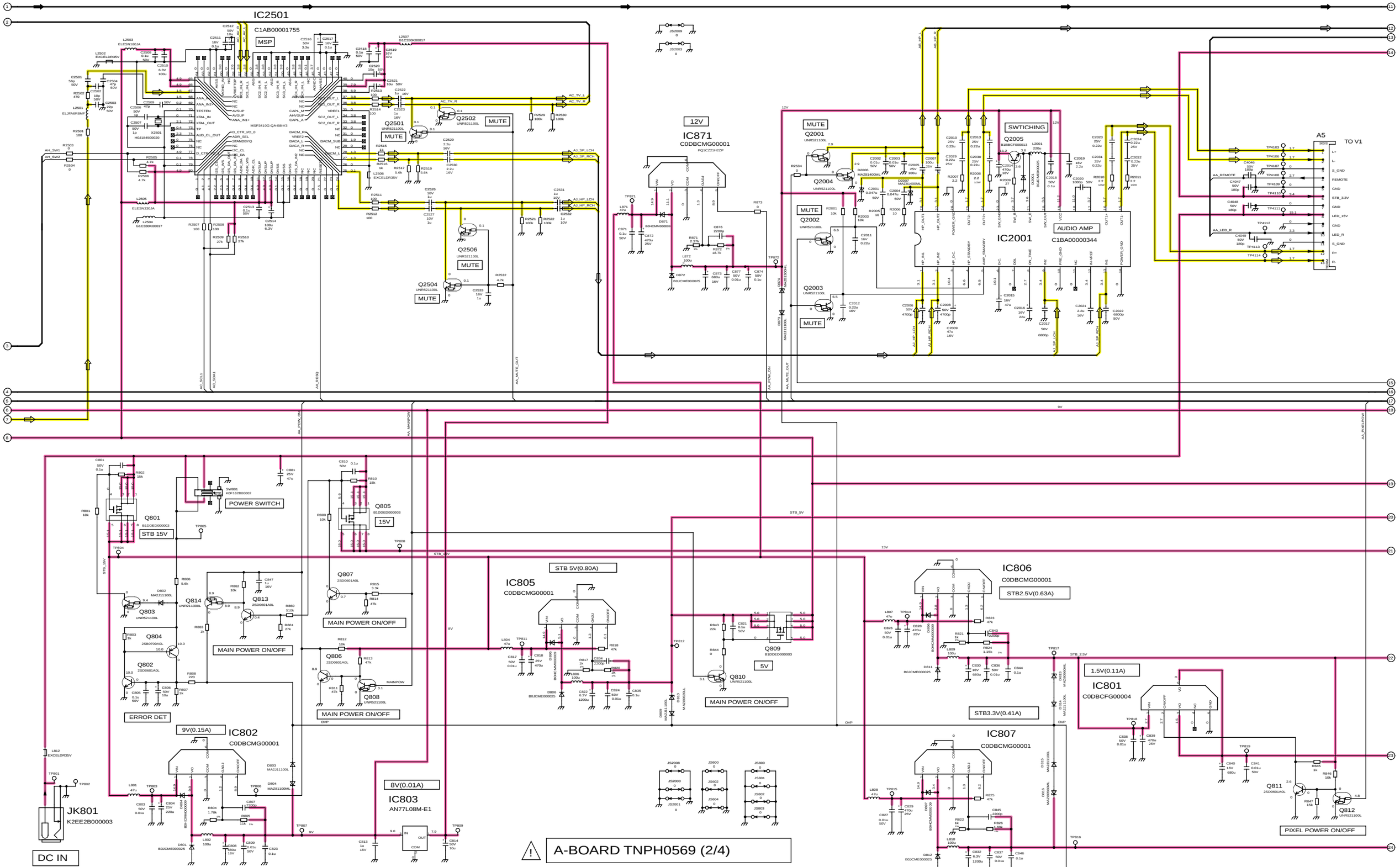
Q603 2SD0601A0L

R622 1k

STB_3.3V

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (3 of 4) Schematic Diagram



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (2 of 4) Schematic Diagram

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (2 of 4) Schematic Diagram

A-BOARD TNPH0569 (1/4)

AV1S

JK4002
K1CB106B0026

AV2

JK4001
K2HA614B0002

AV1 & MONITOR OUT

JK4000
K2HA613B0001

IC4001
C1AB00000461
AV SW

IC851
C0DBAMA00014
TUNER 30V

IC4102
C0FBBD000105
EX.I/O

IC4103
C0BBBA000043
AGC DET

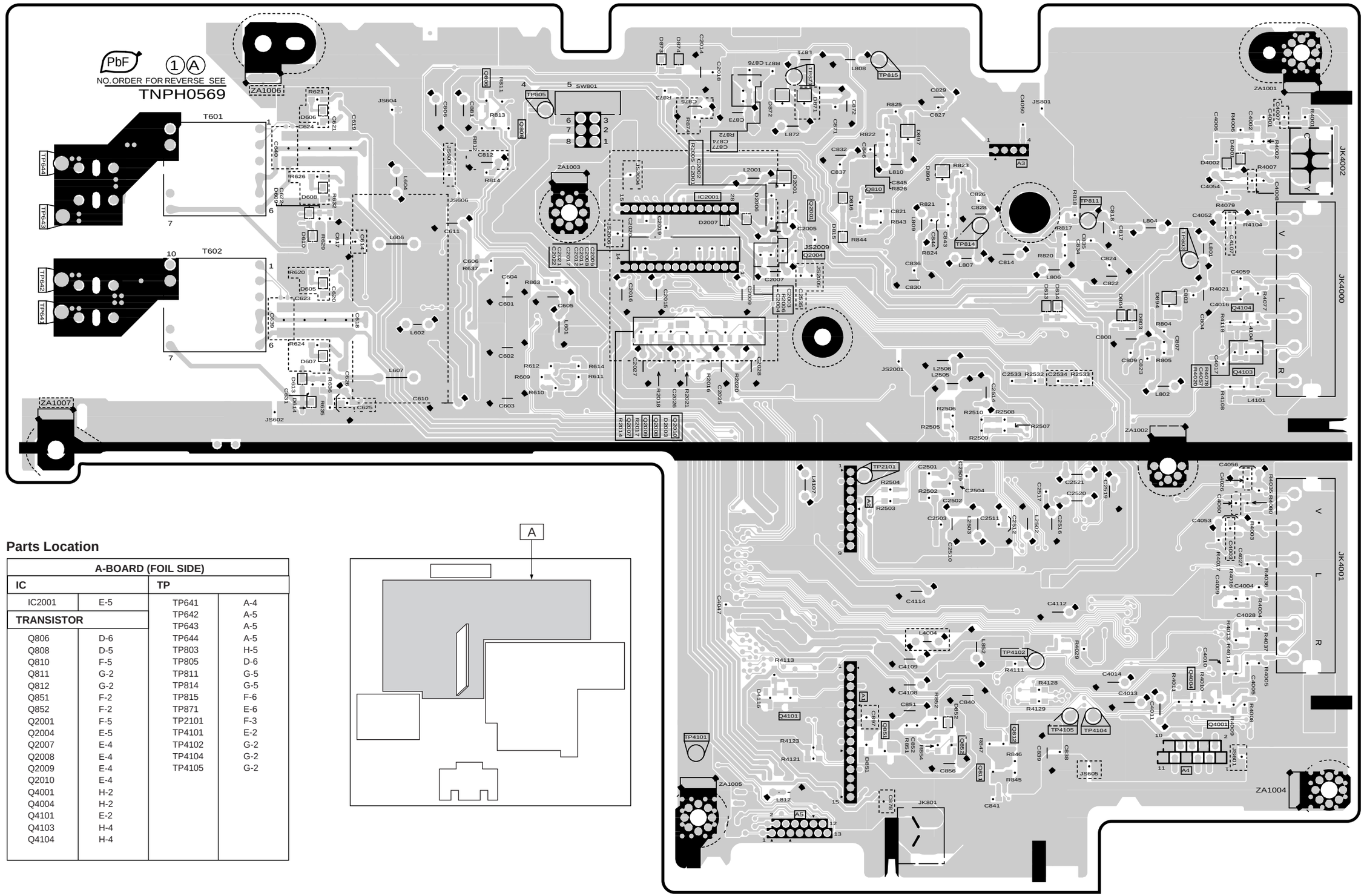
Q4001 2SD0601A0L AMP
Q4002 UNR521100L MUTE
Q4003 UNR521100L MUTE
Q4004 UNR521100L MONITOR_CONT
Q4101 2SB0709A0L RFAGC
Q4102 2SB0709A0L
Q4103 UNR521100L MUTE
Q4104 UNR521100L MUTE
Q851 B1ABPF000005
Q852 UNR521100L
Q2102 2SD0601A0L
Q2103 2SD0601A0L

B-BOARD TNPA3079

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (1 of 4) Schematic Diagram

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-Board (1 of 4) Schematic Diagram

A-BOARD(FOIL SIDE)
TNPH0569

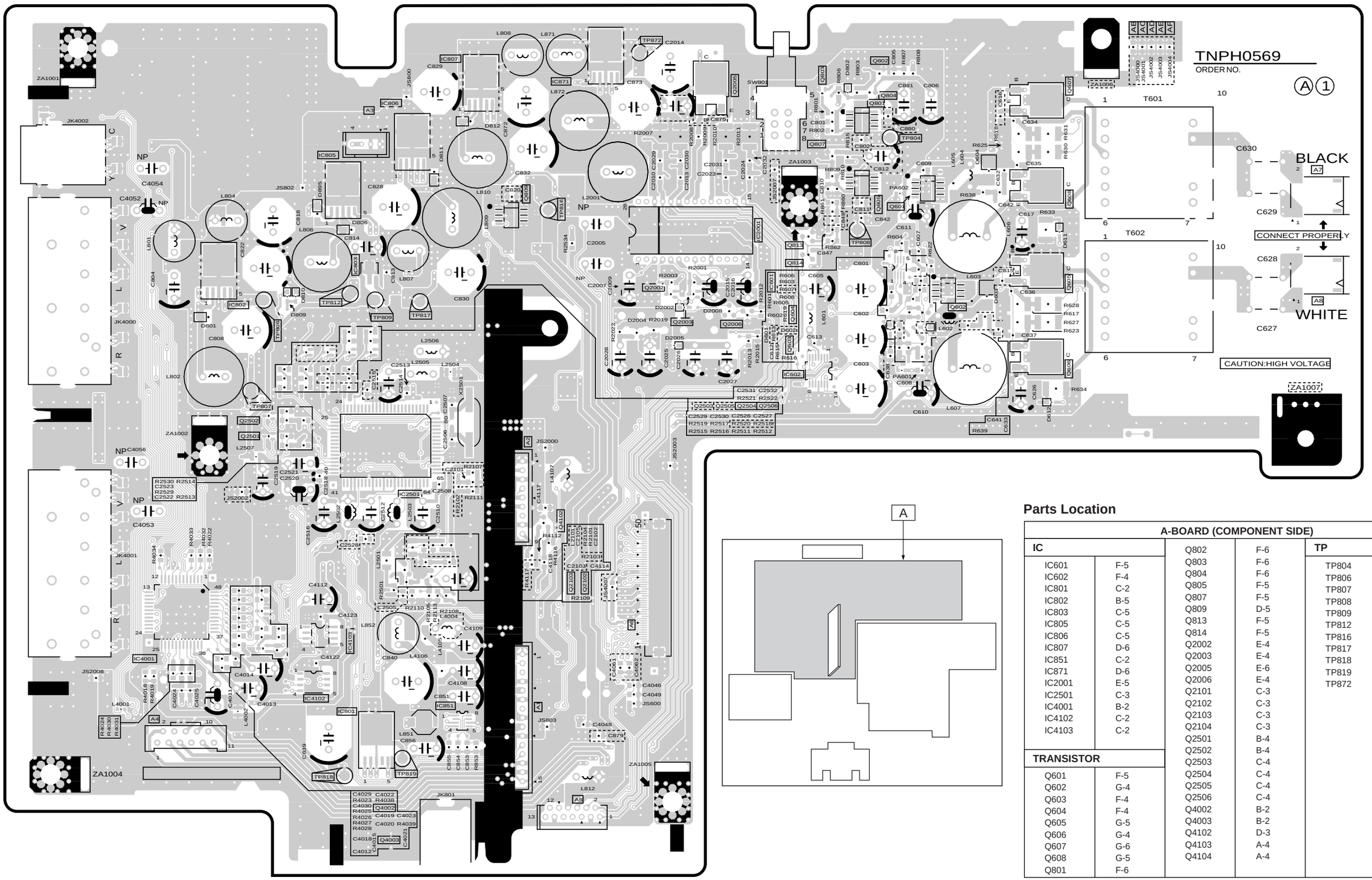


Parts Location

A-BOARD (FOIL SIDE)			
IC		**TP**	
IC2001	E-5	TP641	A-4
TRANSISTOR		TP642	A-5
		TP643	A-5
Q806	D-6	TP644	A-5
Q808	D-5	TP803	H-5
Q810	F-5	TP805	D-6
Q811	G-2	TP811	G-5
Q812	G-2	TP814	G-5
Q851	F-2	TP815	F-6
Q852	F-2	TP871	E-6
Q2001	F-5	TP2101	F-3
Q2004	E-5	TP4101	E-2
Q2007	E-4	TP4102	G-2
Q2008	E-4	TP4104	G-2
Q2009	E-4	TP4105	G-2
Q2010	E-4		
Q4001	H-2		
Q4004	H-2		
Q4101	E-2		
Q4103	H-4		
Q4104	H-4		

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-BOARD TNPH0569

A-BOARD(COMPONENT SIDE)
TNPH0569



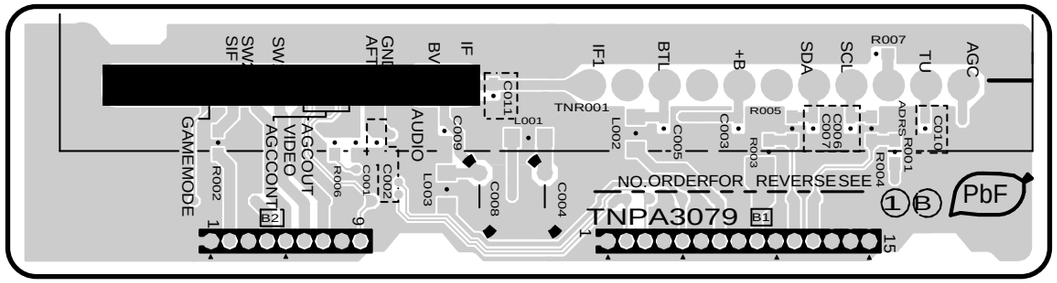
Parts Location

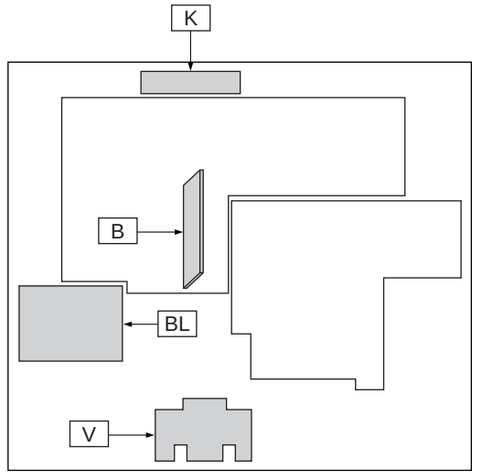
A-BOARD (COMPONENT SIDE)

IC				TP	
IC601	F-5	Q802	F-6	TP804	F-5
IC602	F-4	Q803	F-6	TP806	B-4
IC801	C-2	Q804	F-6	TP807	B-4
IC802	B-5	Q805	F-5	TP808	F-5
IC803	C-5	Q807	F-5	TP809	C-4
IC805	C-5	Q809	D-5	TP812	C-4
IC806	C-5	Q813	F-5	TP816	D-5
IC807	D-6	Q814	F-5	TP817	C-4
IC851	C-2	Q2002	E-4	TP818	C-1
IC871	D-6	Q2003	E-4	TP819	C-2
IC2001	E-5	Q2005	E-6	TP872	E-6
IC2501	C-3	Q2006	E-4		
IC4001	B-2	Q2101	C-3		
IC4102	C-2	Q2102	C-3		
IC4103	C-2	Q2103	C-3		
		Q2104	C-3		
TRANSISTOR		Q2501	B-4		
Q601	F-5	Q2502	B-4		
Q602	G-4	Q2503	C-4		
Q603	F-4	Q2504	C-4		
Q604	F-4	Q2505	C-4		
Q605	G-5	Q2506	C-4		
Q606	G-4	Q4002	B-2		
Q607	G-6	Q4003	B-2		
Q608	G-5	Q4102	D-3		
Q801	F-6	Q4103	A-4		
		Q4104	A-4		

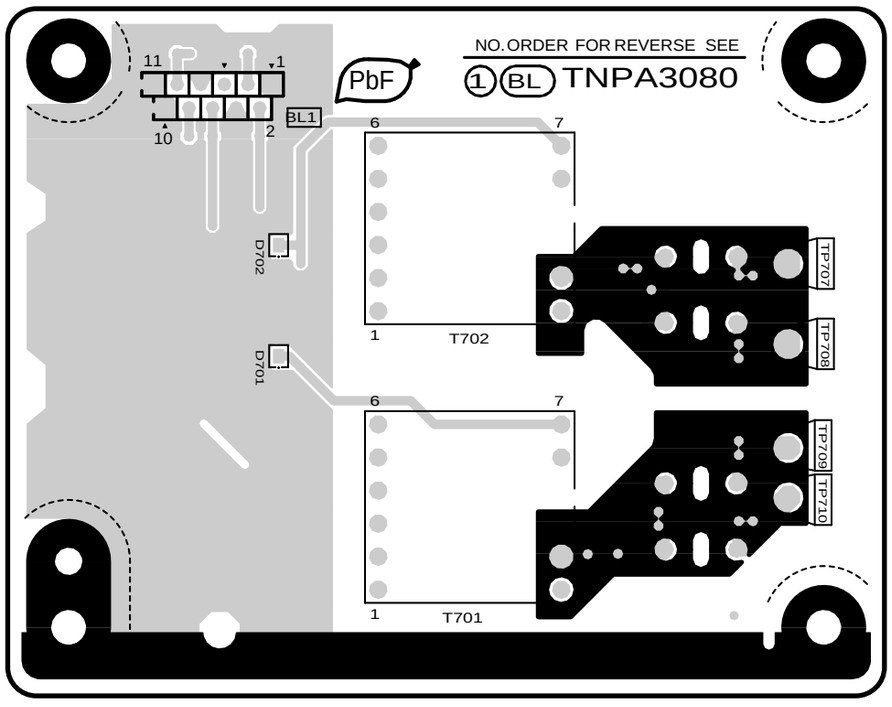
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
A-BOARD TNPH0569

B-BOARD(FOILSIDE)
TNPA3079

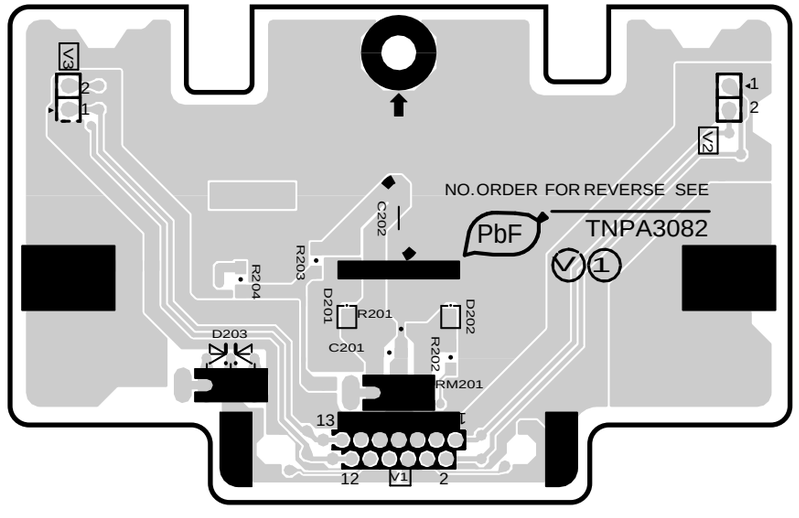




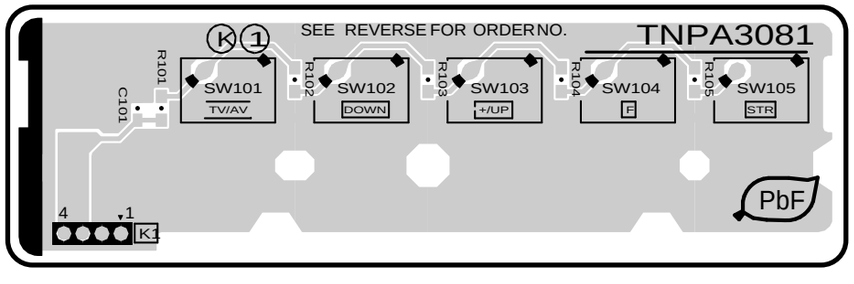
BL-BOARD(FOIL SIDE)
TNPA3080



V-BOARD(FOIL SIDE)
TNPA3082

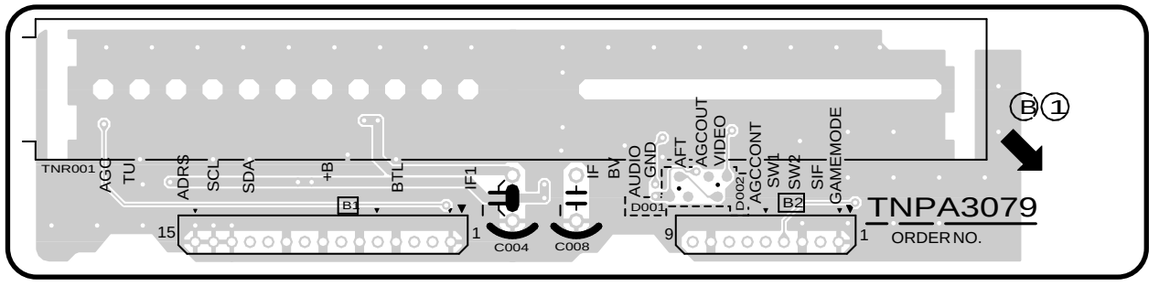


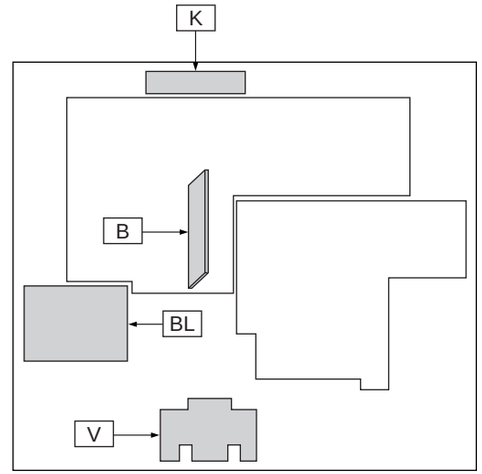
K-BOARD(FOIL SIDE)
TNPA3081



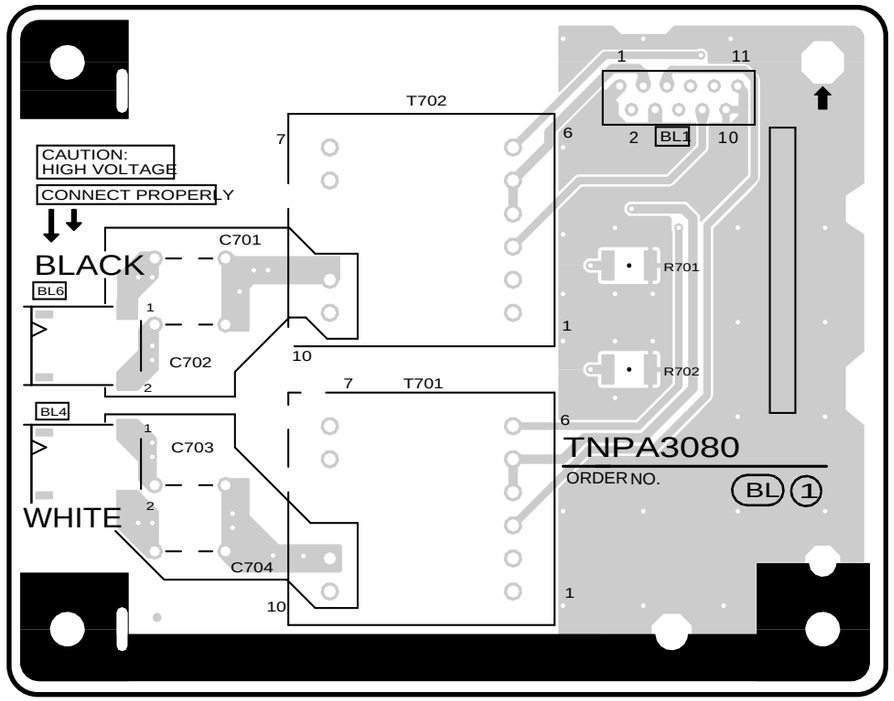
TC-17/20LA1H,TX-17/20LA1M/Q/T/X/Z
B-BOARD TNPA3079 K-BOARD TNPA3081
BL-BOARD TNPA3080 V-BOARD TNPA3082

B-BOARD(COMPONENT SIDE)
TNPA3079



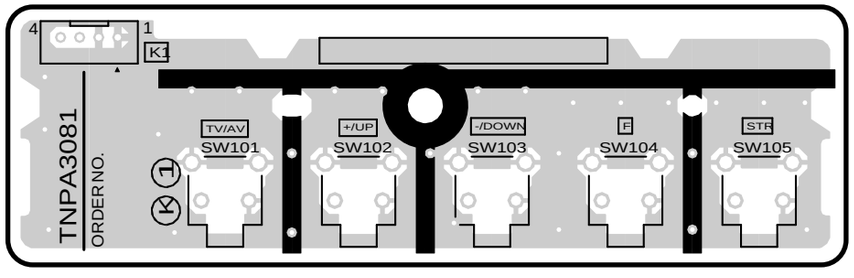


BL-BOARD(COMPONENT SIDE)
TNPA3080



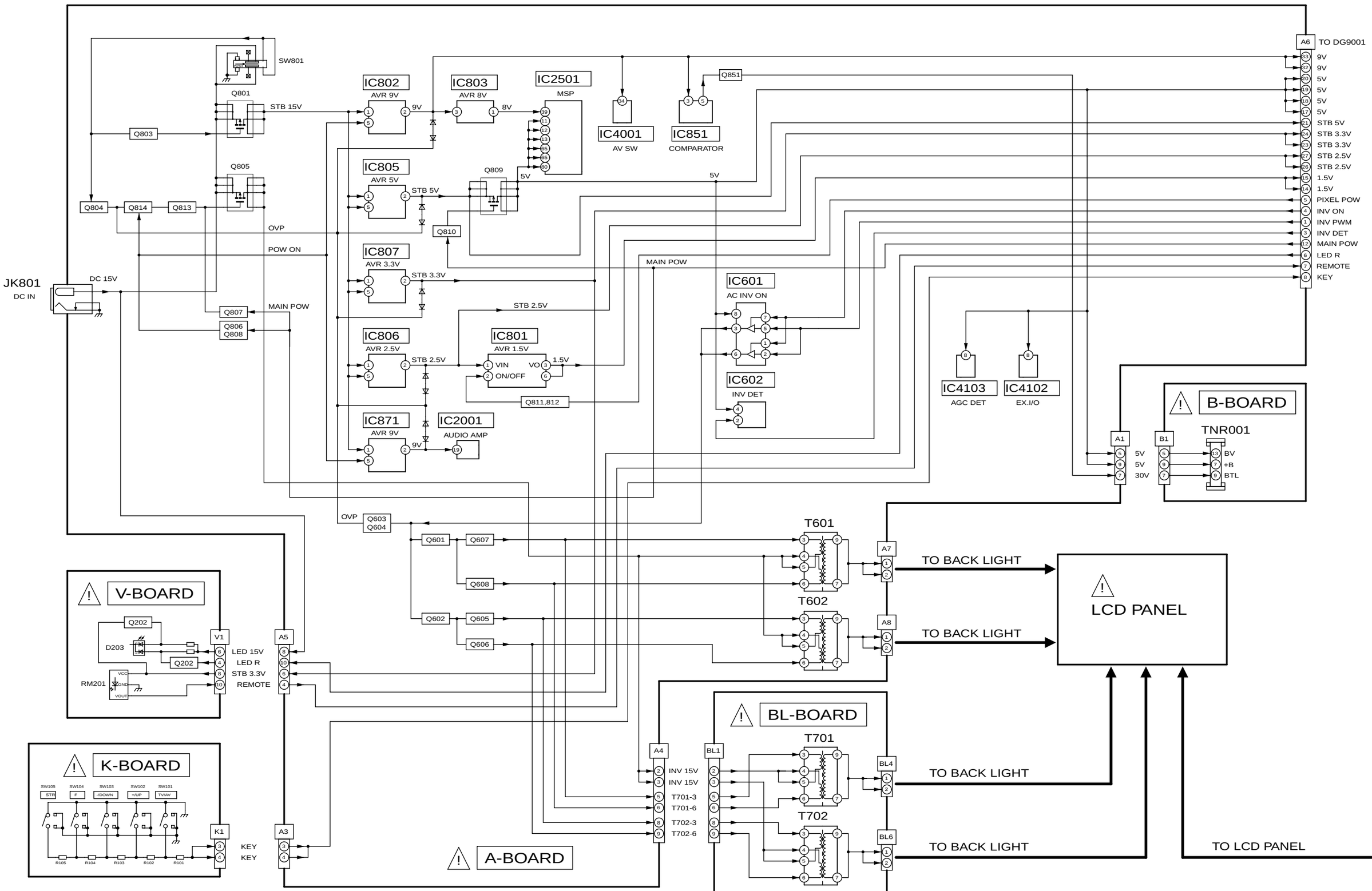
V-BOARD(COMPONENT SIDE)
TNPA3082

K-BOARD(COMPONENT SIDE)
TNPA3081



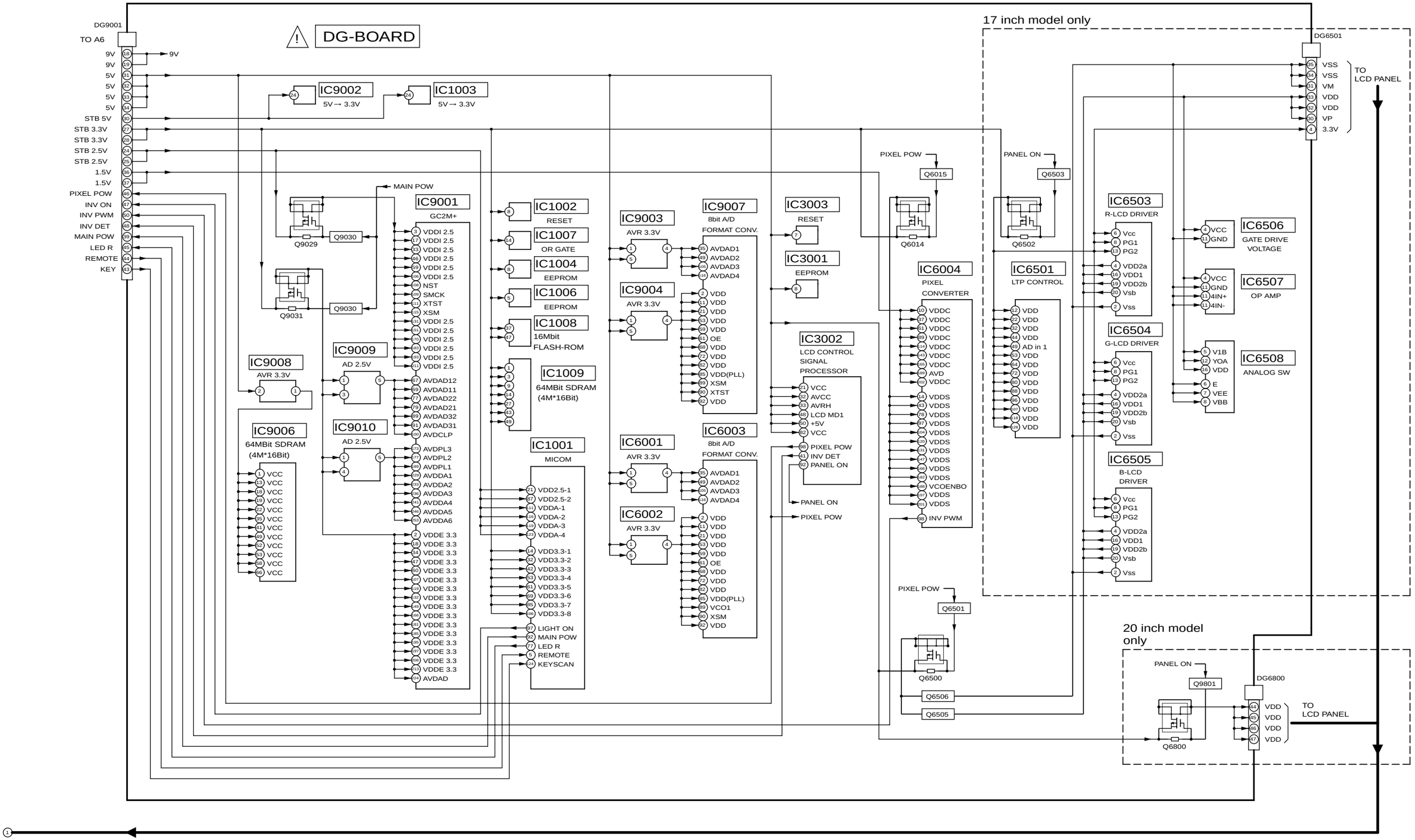
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
B-BOARD TNPA3079 K-BOARD TNPA3081
BL-BOARD TNPA3080 V-BOARD TNPA3082

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
B-BOARD TNPA3079 K-BOARD TNPA3081
BL-BOARD TNPA3080 V-BOARD TNPA3082

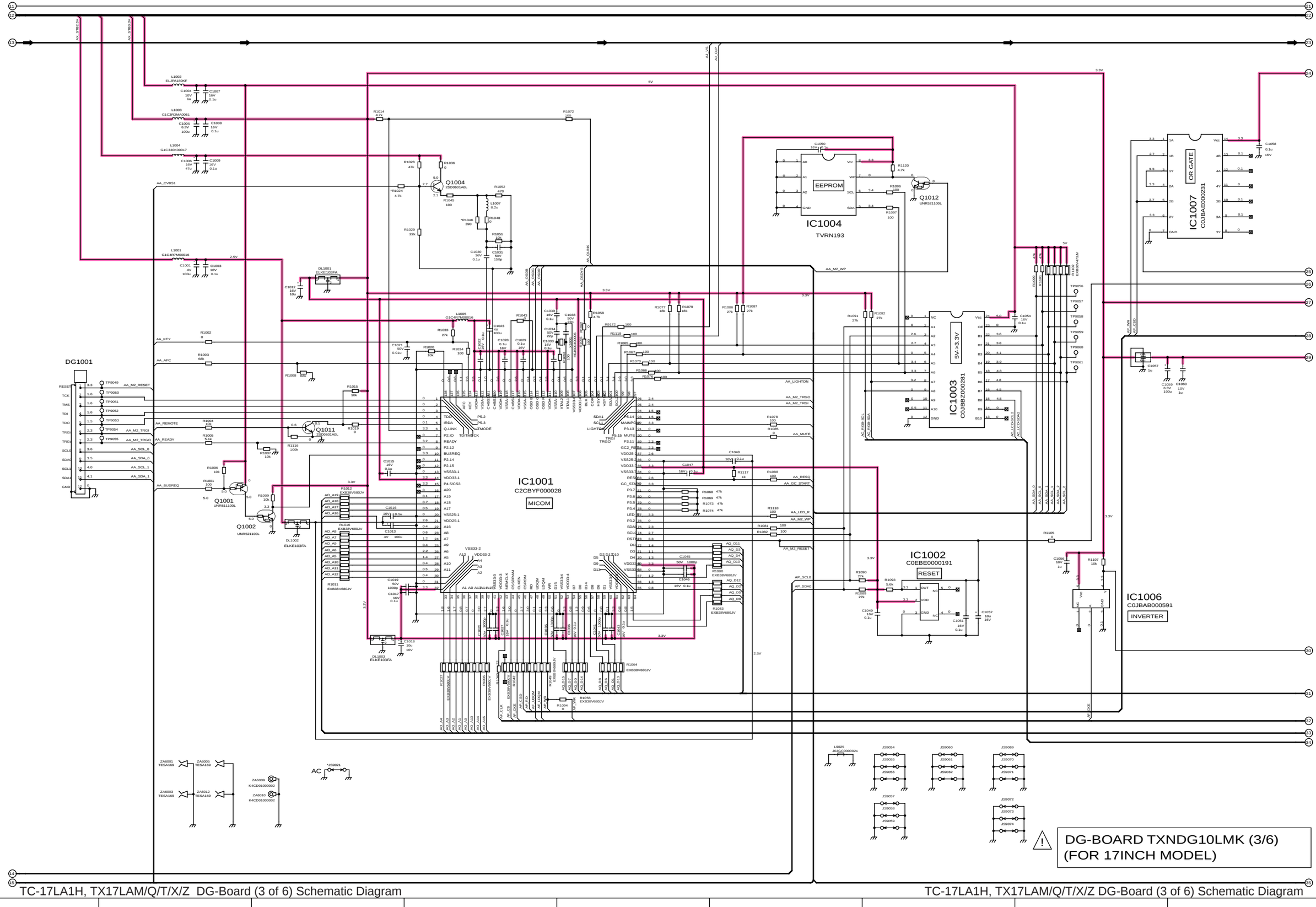


TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram

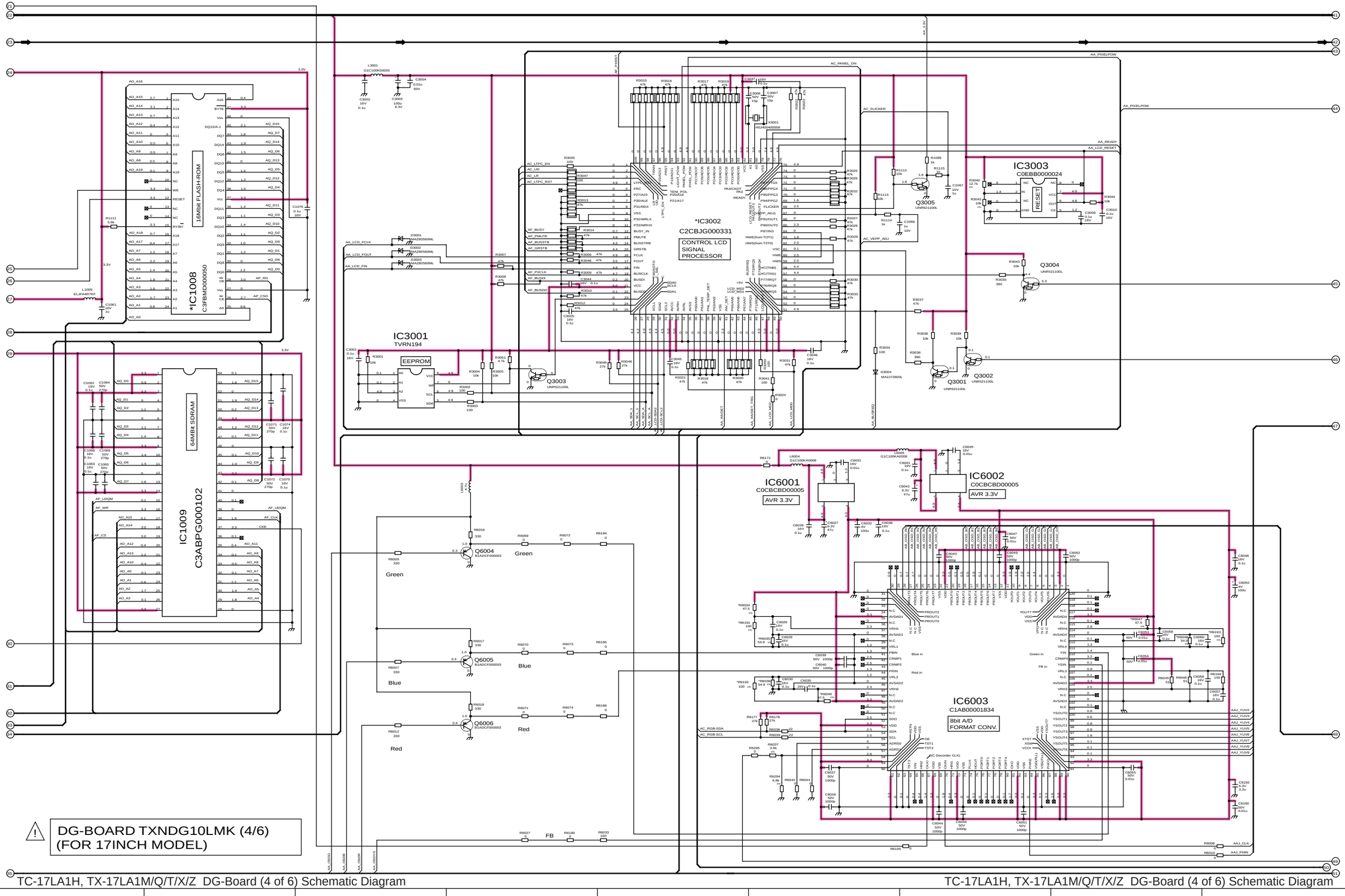
TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Power Block Diagram



TC-17LA1H, TX17LAM/Q/T/X/Z DG-Board (3 of 6) Schematic Diagram



⚠ DG-BOARD TXNDG10LMK (4/6)
(FOR 17INCH MODEL)

TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (4 of 6) Schematic Diagram

IC6004
C1ZBZ0002178
PIXEL CONVERTER

IC6501
C1ZBZ0002203
LTP CONTROL

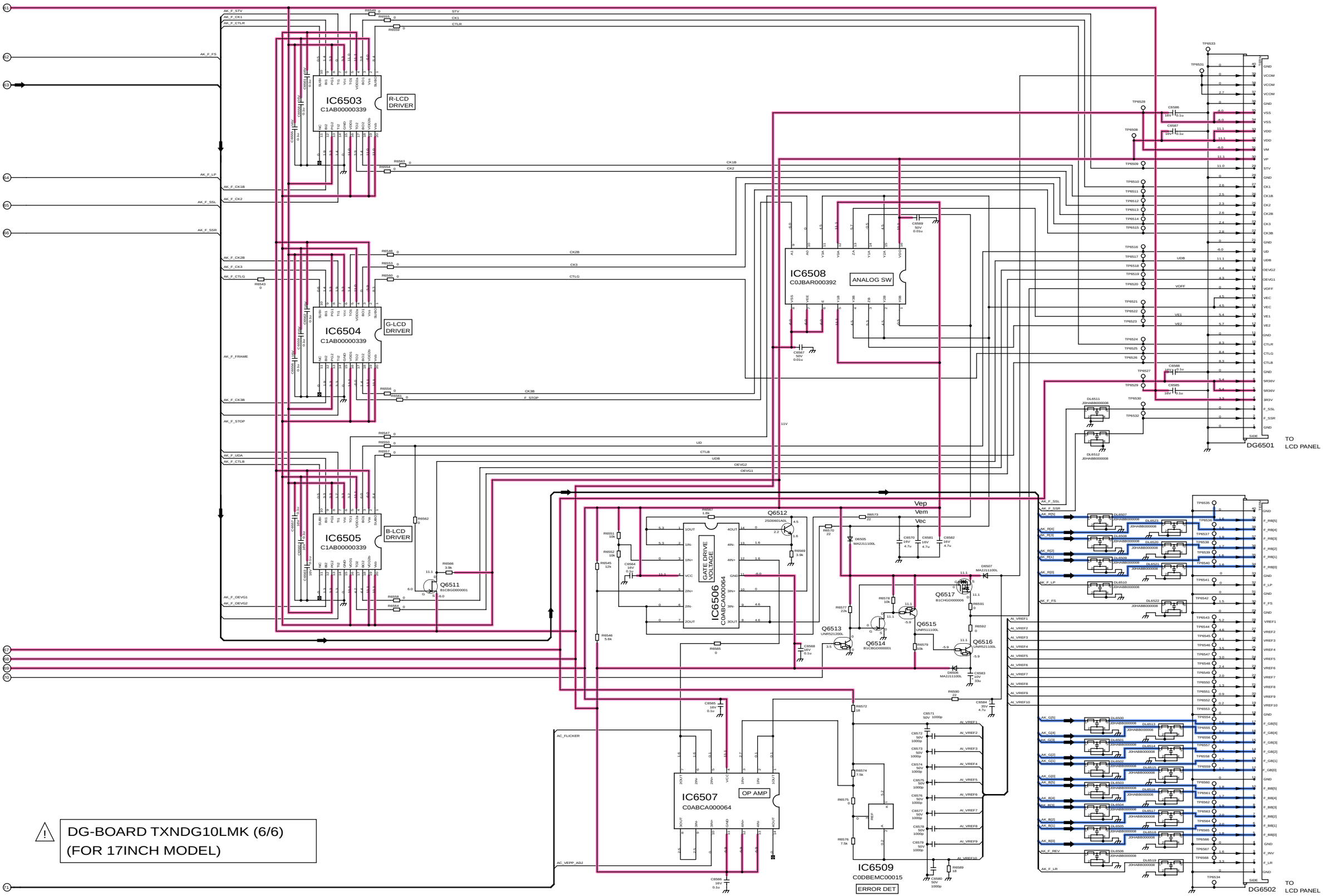
IC6502
C0DBAM000009
SWITCHING POWER SUPPLY CONTROL

IC6500
C0EBE0000191
RESET

DG-BOARD TXNDG10LMK (5/6)
(FOR 17INCH MODEL)

TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (5 of 6) Schematic Diagram

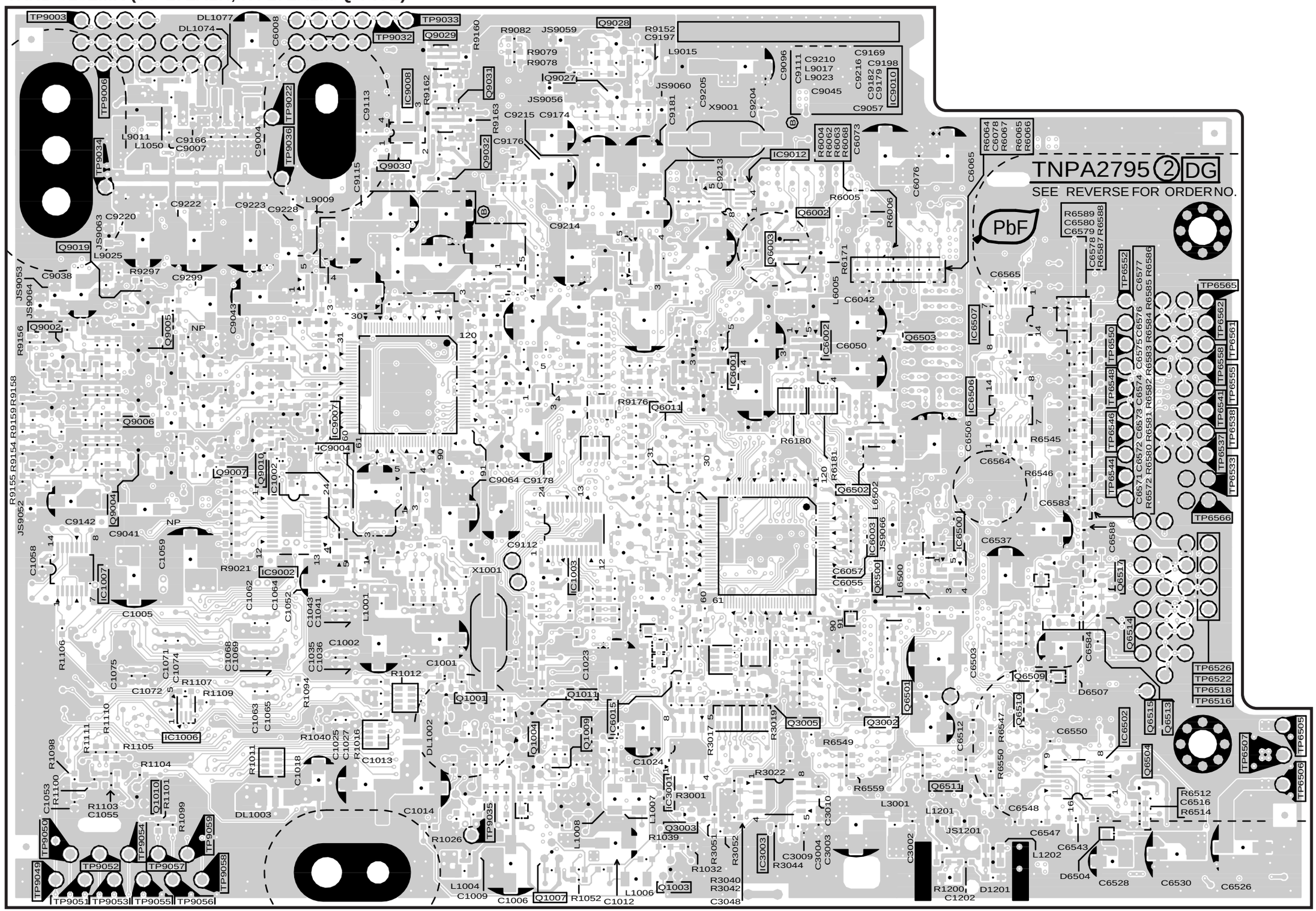
37 38 39 40 41 42 43 44 45



⚠ DG-BOARD TXNDG10LMK (6/6)
(FOR 17INCH MODEL)

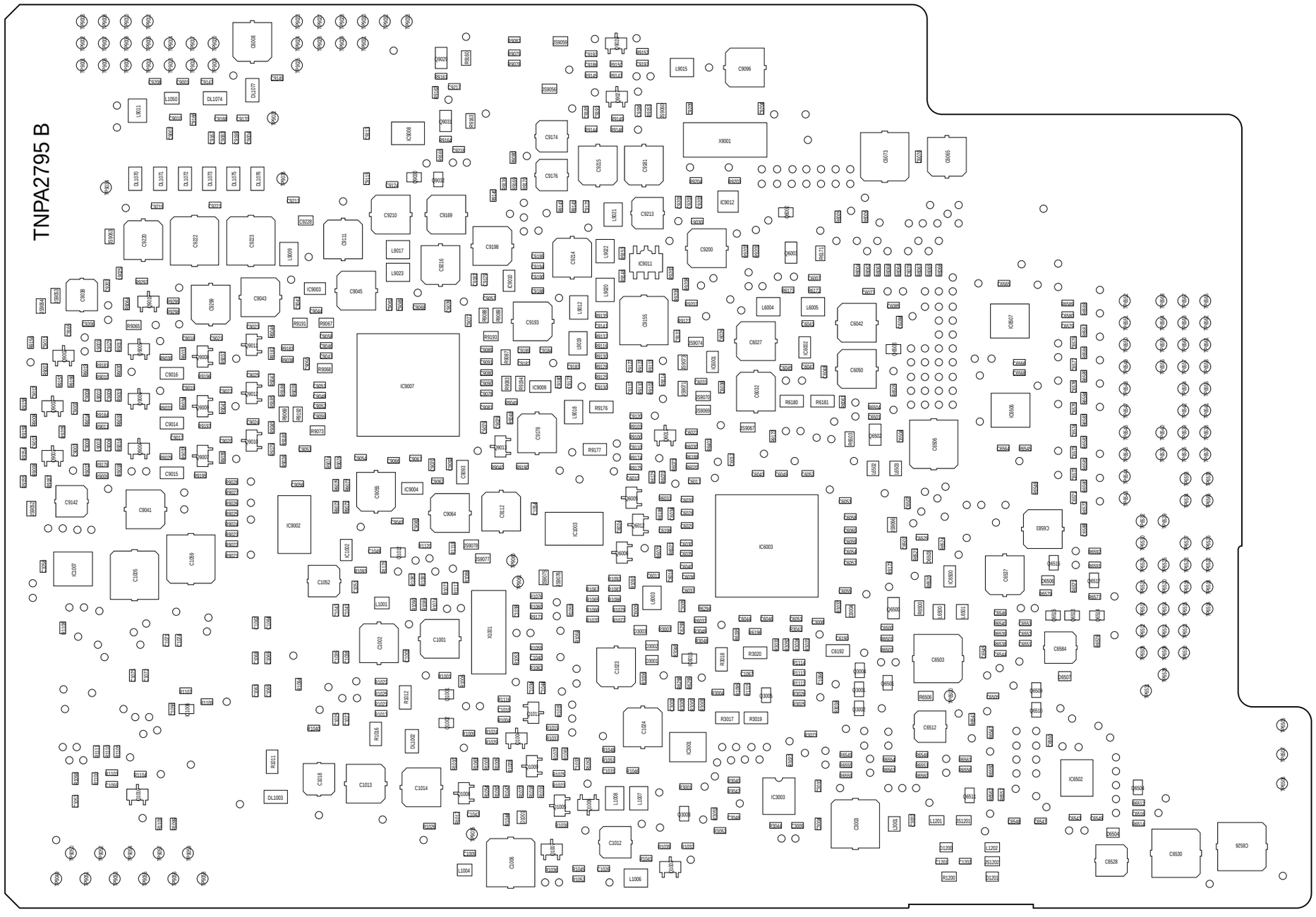
TC-17LA1H, TX17LA1M/Q/T/X/Z DG-Board (6 of 6) Schematic Diagram

DG-BOARD (FOIL SIDE)
TXNDG10LMK (TC-17LA1H, TX-17LA1M/Q/T/X/Z)



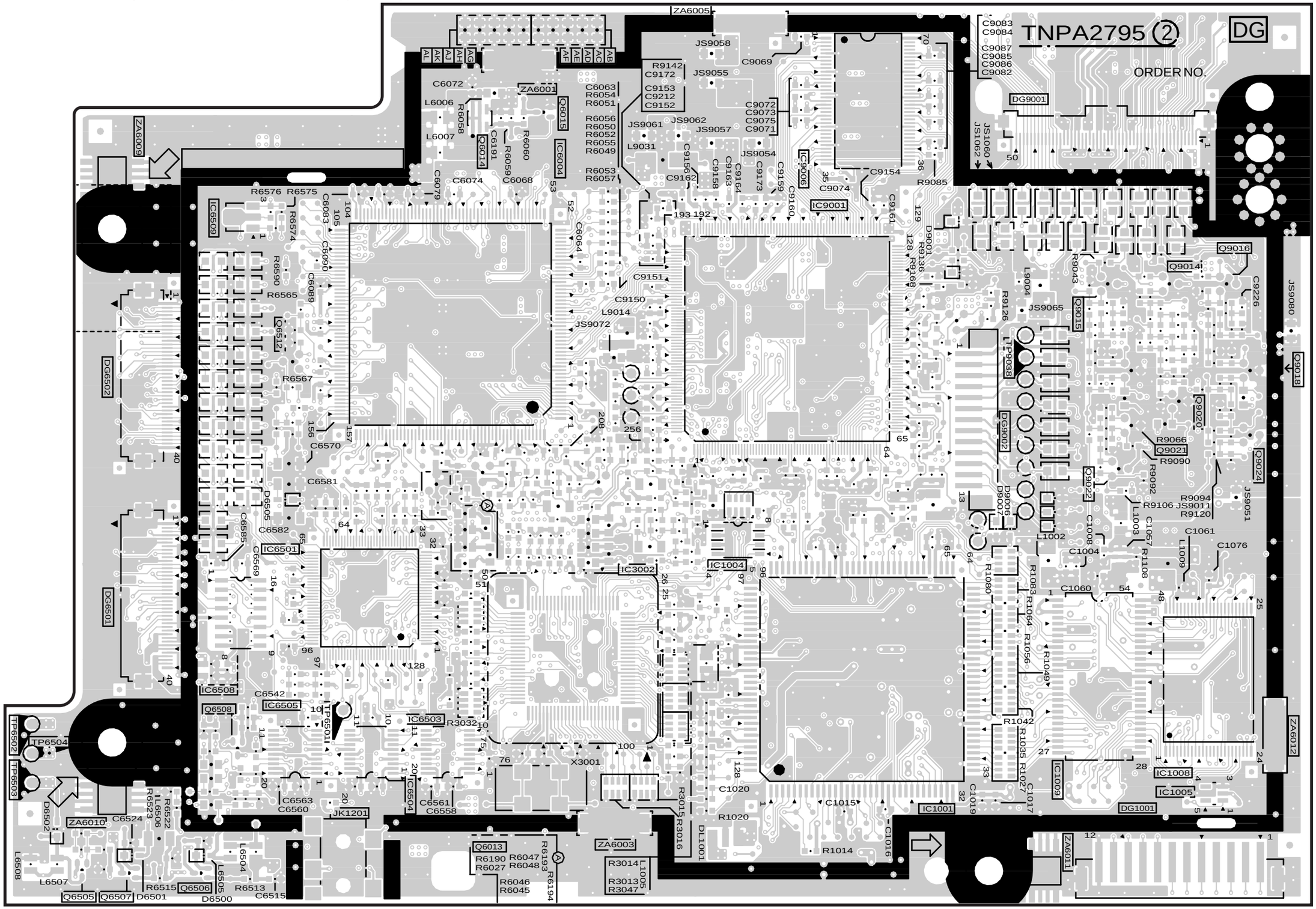
TC-17LA1H, TX-17LA1M/Q/T/X/Z
DG-BOARD TXNDG10LMK

DG-BOARD (17inch model)



TC-17LA1H, TX-17LA1M/Q/T/X/Z
DG-BOARD (TXNDG10LMK)

DG-BOARD (COMPONENT SIDE)
TXNDG10LMK (TC-17LA1H, TX-17LA1M/Q/T/X/Z)


TNPA2795 (2)
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DG6502
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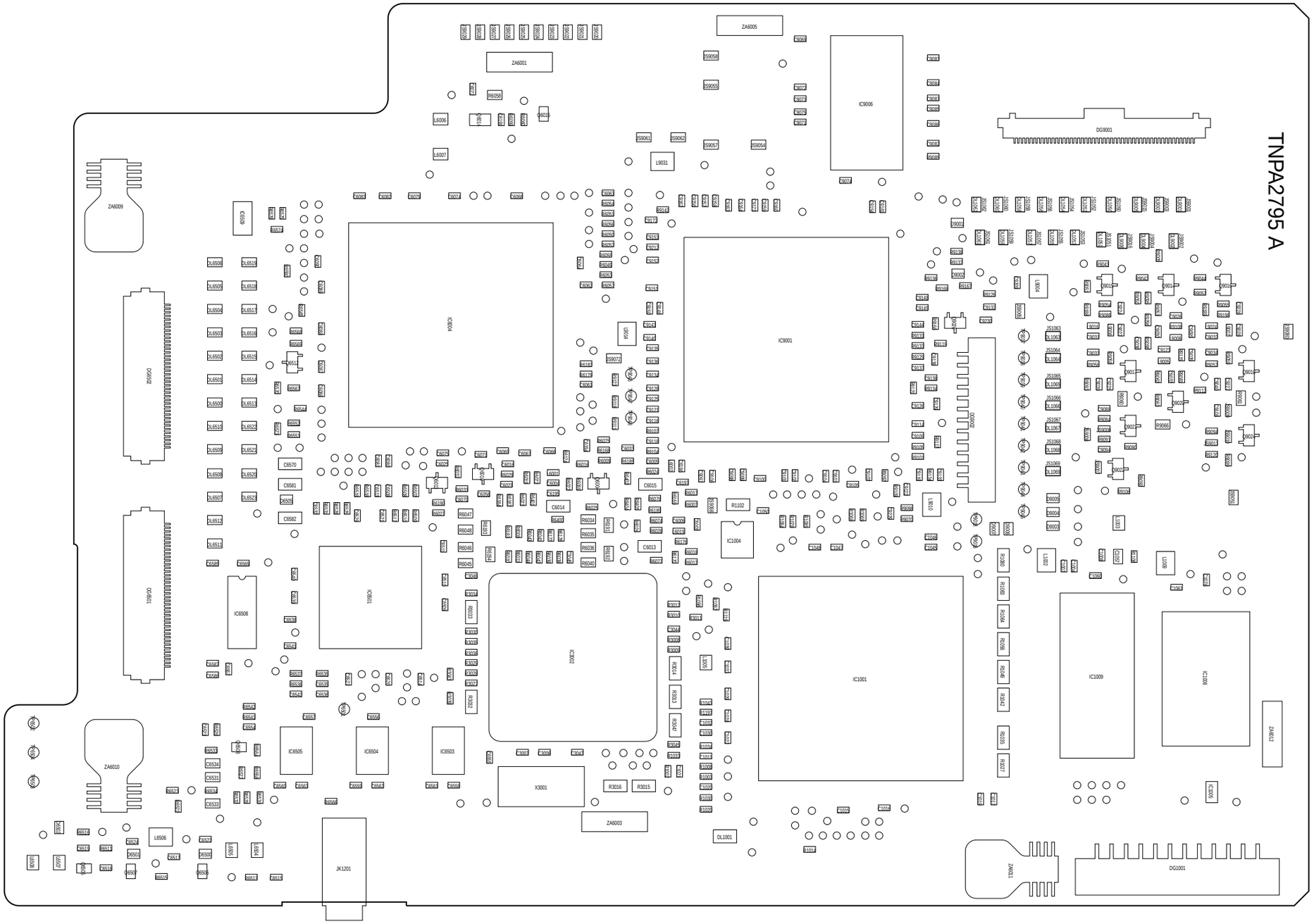
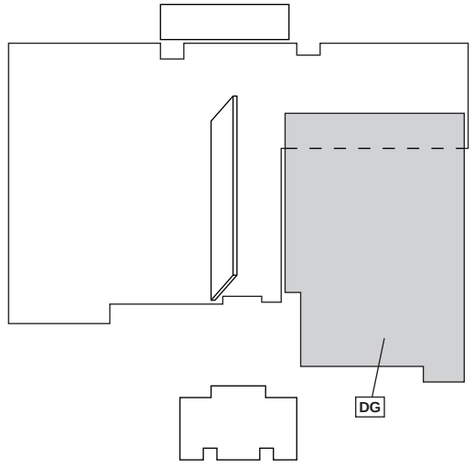
DG-BOARD (17inch model)



TC-17LA1H, TX-17LA1M/Q/T/X/Z
DG-BOARD (TXNDG10LMK)



Parts Location

DG-BOARD (FOIL SIDE)

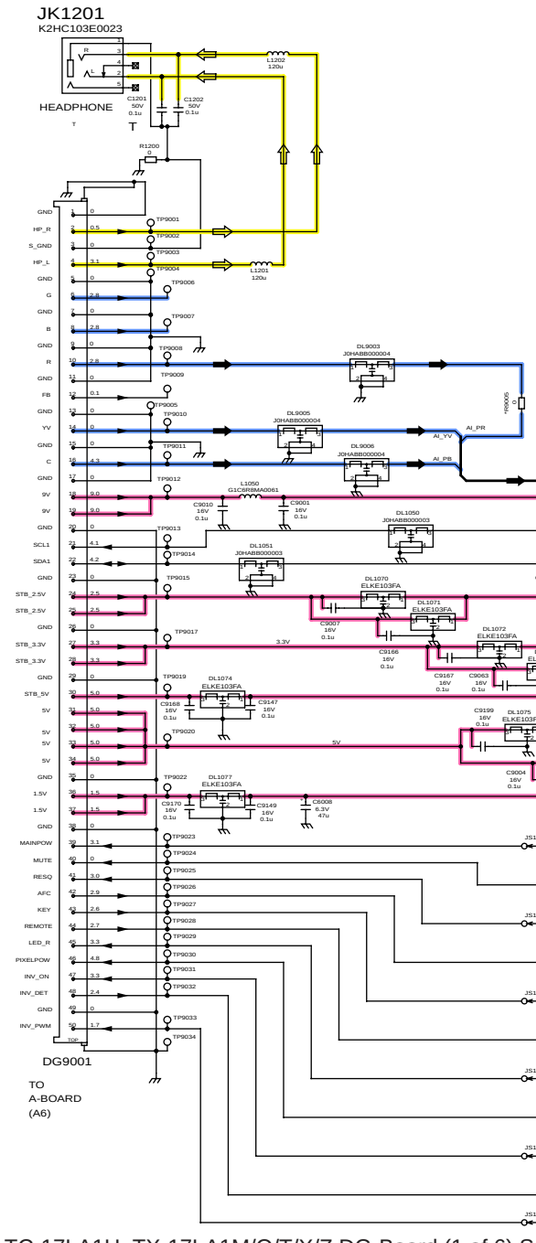
IC				TP							
IC1002	C-3	Q3004	F-2	TP6500	F-2	TP6545	G-3	TP9022	B-6
IC1003	D-3	Q3005	E-2	TP6505	H-2	TP6546	G-4	TP9023	C-6
IC1006	B-2	Q6002	E-5	TP6506	H-2	TP6547	G-4	TP9024	C-6
IC1007	A-3	Q6003	E-5	TP6507	H-2	TP6548	G-4	TP9025	C-6
IC3001	E-2	Q6005	E-3	TP6508	H-2	TP6549	G-4	TP9026	C-6
IC3003	E-1	Q6006	D-3	TP6509	H-2	TP6550	G-4	TP9027	C-6
IC6001	E-5	Q6011	E-4	TP6510	H-2	TP6551	G-4	TP9028	C-6
IC6002	F-4	Q6012	E-3	TP6511	H-2	TP6552	G-4	TP9029	C-6
IC6003	E-3	Q6500	F-3	TP6512	H-2	TP6553	H-3	TP9030	C-6
IC6015	E-2	Q6501	F-2	TP6513	H-2	TP6554	H-4	TP9031	C-6
IC6500	F-3	Q6502	F-3	TP6514	H-3	TP6555	H-4	TP9032	C-6
IC6502	G-2	Q6504	H-2	TP6515	H-3	TP6556	H-4	TP9033	C-6
IC6506	G-4	Q6508	F-4	TP6516	H-3	TP6557	H-4	TP9034	A-5
IC6507	G-4	Q6509	G-2	TP6517	H-3	TP6558	H-4	TP9035	D-1
IC9002	B-3	Q6510	G-2	TP6518	H-3	TP6559	H-4	TP9036	B-5
IC9003	C-4	Q6511	G-1	TP6519	H-3	TP6560	H-4	TP9049	A-1
IC9004	C-3	Q6513	H-2	TP6520	H-3	TP6561	H-4	TP9050	A-1
IC9007	C-4	Q6514	H-3	TP6521	H-3	TP6562	H-4	TP9051	A-1
IC9008	C-6	Q6515	H-2	TP6522	H-3	TP6563	H-4	TP9052	A-1
IC9009	D-4	Q6516	G-3	TP6523	H-3	TP6564	H-4	TP9053	A-1
IC9010	D-4	Q6517	G-3	TP6524	H-3	TP6565	H-4	TP9054	B-1
IC9011	E-5	Q9001	A-4	TP6525	H-3	TP6566	H-4	TP9055	B-1
IC9012	E-5	Q9002	A-4	TP6526	H-3	TP6567	H-4	TP9056	B-1
		Q9003	A-4	TP6527	H-3	TP6568	H-4	TP9057	B-1
TRANSISTOR		Q9004	A-3	TP6528	H-2	TP9001	A-6	TP9058	B-1
		Q9005	B-4	TP6529	H-3	TP9002	A-6	TP9059	B-1
Q1001	C-2	Q9006	B-4	TP6531	H-2	TP9003	A-6	TP9060	D-3
Q1002	C-2	Q9007	B-4	TP6532	H-3	TP9004	A-6	TP9061	D-3
Q1003	E-1	Q9008	B-4	TP6533	H-3	TP9005	B-6		
Q1004	D-2	Q9009	B-4	TP6534	H-3	TP9006	A-6		
Q1005	D-1	Q9010	B-4	TP6535	H-3	TP9007	A-6		
Q1006	D-1	Q9011	B-4	TP6536	H-3	TP9008	A-6		
Q1007	D-1	Q9012	B-4	TP6537	H-3	TP9009	A-6		
Q1008	D-1	Q9013	D-4	TP6538	H-4	TP9010	A-6		
Q1009	D-2	Q9019	A-5	TP6539	H-4	TP9011	B-6		
Q1010	B-1	Q9027	D-6	TP6540	H-4	TP9012	B-6		
Q1011	D-2	Q9028	D-6	TP6541	H-4	TP9014	B-6		
Q1012	C-3	Q9029	C-6	TP6542	H-4	TP9015	B-6		
Q3001	F-2	Q9030	C-5	TP6543	G-3	TP9017	B-6		
Q3002	F-2	Q9031	C-6	TP6544	G-3	TP9018	B-6		
Q3003	E-1	Q9032	C-5			TP9019	B-6		
						TP9020	B-6		

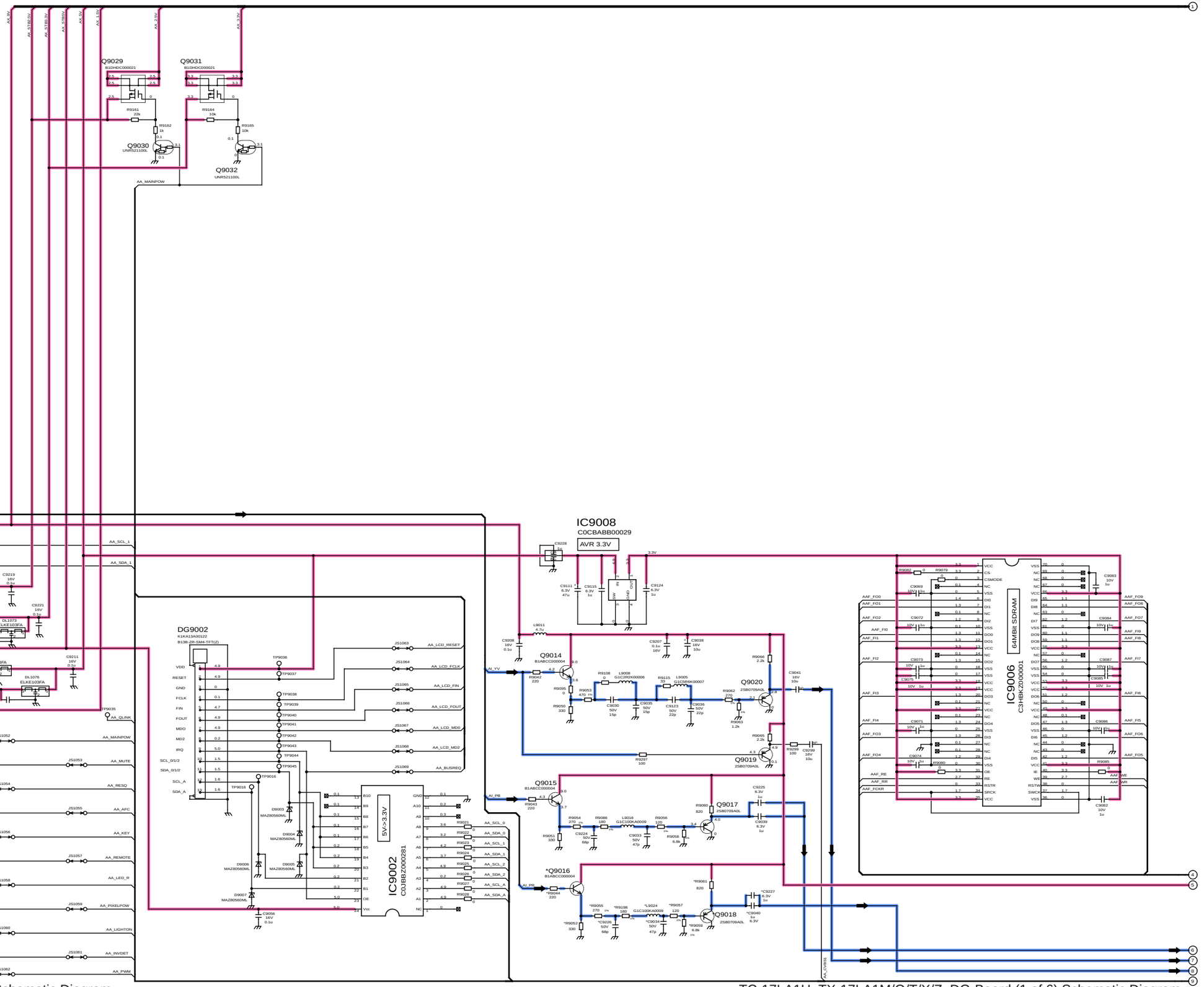
Parts Location

DG-BOARD (COMPONENT SIDE)

IC		TRANSISTOR		TP	
IC1001	F-2	Q6004	D-3	TP6501	C-2
IC1004	E-3	Q6010	D-3	TP6502	A-2
IC1005	H-1	Q6013	C-3	TP6503	A-2
IC1008	H-2	Q6014	D-5	TP6504	A-2
IC1009	G-2	Q6015	D-5	TP9016	G-3
IC3002	D-3	Q6503	B-2	TP9018	G-3
IC6004	D-5	Q6505	A-1	TP9037	G-4
IC6501	C-3	Q6506	B-1	TP9038	G-4
IC6503	C-2	Q6507	A-1	TP9039	G-4
IC6504	C-2	Q6512	B-4	TP9040	G-4
IC6505	B-2	Q9014	H-5	TP9041	G-4
IC6508	B-2	Q9015	G-4	TP9042	G-3
IC6509	B-5	Q9016	H-5	TP9043	G-3
IC9001	F-5	Q9017	H-4	TP9044	G-3
IC9006	F-5	Q9018	H-4	TP9045	G-3
		Q9020	H-4	TP9046	E-4
		Q9021	H-4	TP9047	E-4
		Q9022	G-3	TP9048	E-4
		Q9024	H-3		
		Q9026	F-4		

DG-BOARD TXNDG10LMK (1/6)
(FOR 17INCH MODEL)





DG-BOARD TXNDG10LMK (2/6)
(FOR 17INCH MODEL)

IC9001
C1AB00001826
GC2M+

IC9012
C0JBAB000382
INVERTER

IC9010
C0CBCAD00006
AVR 3.3V

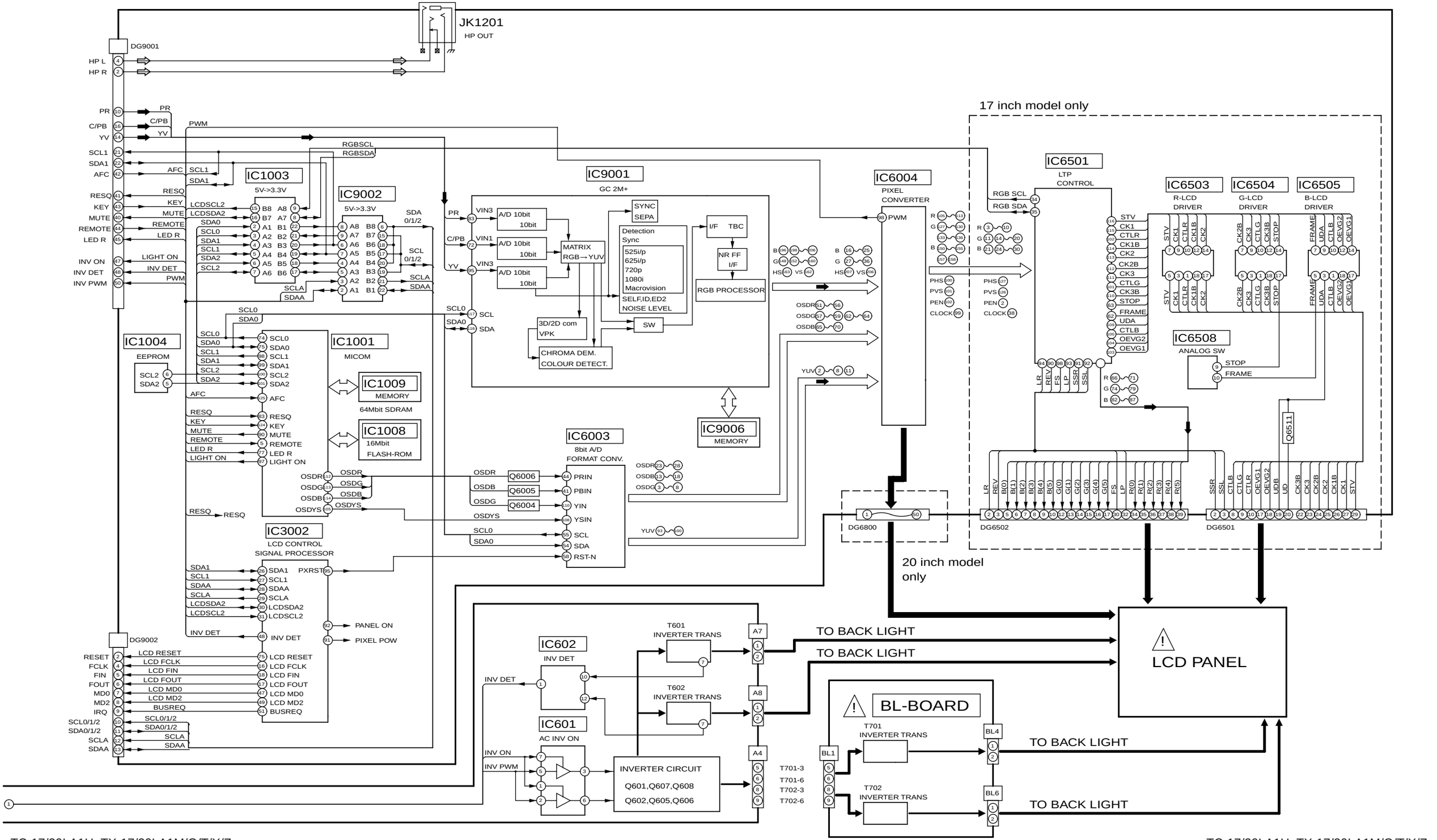
IC9009
C0CBCAD00006
AD 2.5V

DA Macro
AD Macro
ACL EHT MP
XTAL
Macro

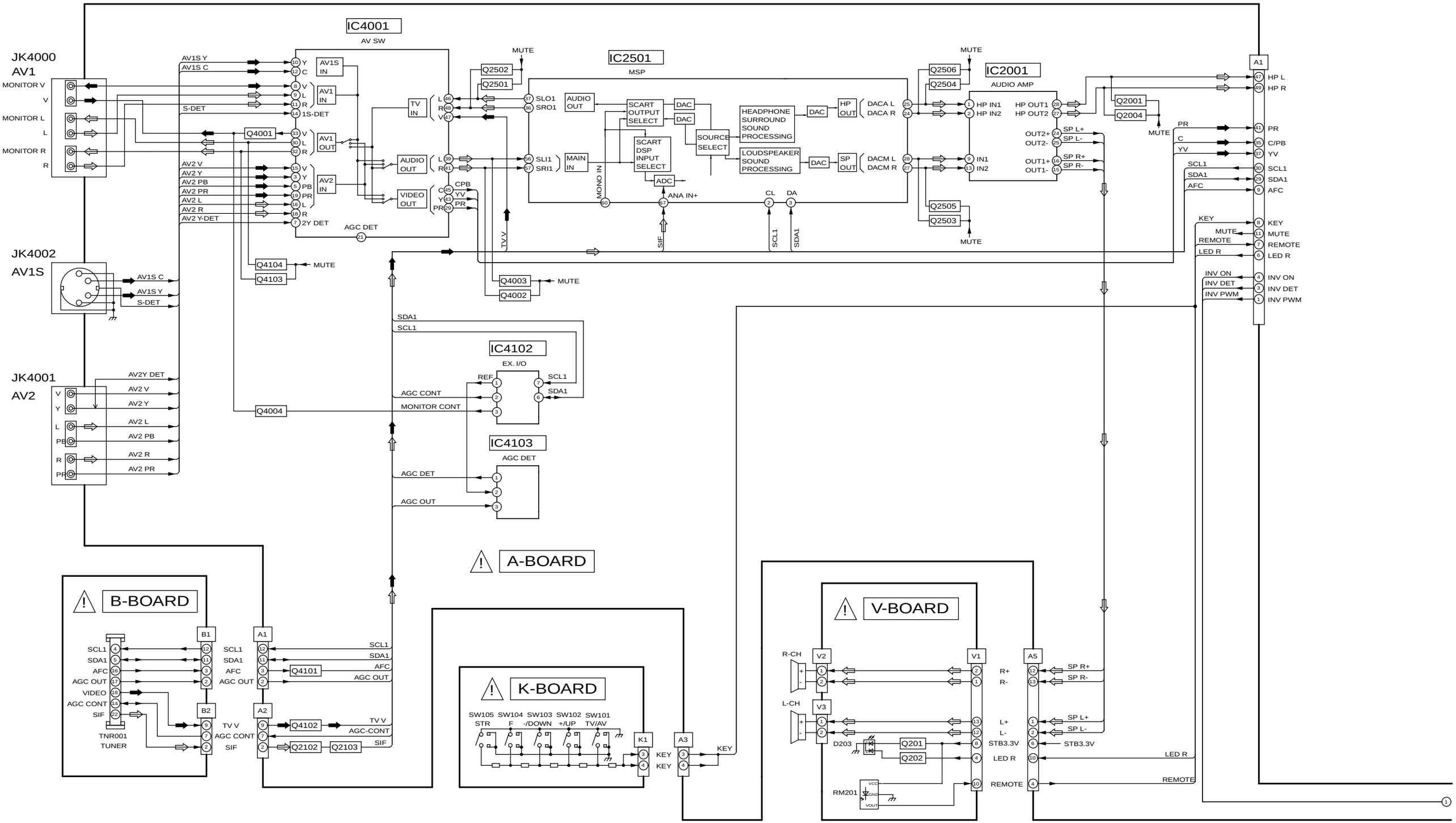
For Mid CLK PLL
For BurstLock PLL
PLL
PLL For back
PLL For Burst
For DDIF
H-REF

TC-17LA1H, TX-17LA1M/Q/T/X/Z DG-Board (2 of 6) Schematic Diagram

10 11 12 13 14 15 16 17 18



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram



TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram

TC-17/20LA1H, TX-17/20LA1M/Q/T/X/Z
Signal Block Diagram